

=> fil reg

FILE 'REGISTRY' ENTERED AT 09:11:51 ON 26 OCT 2006

=> d his

FILE 'HCAPLUS' ENTERED AT 07:57:26 ON 26 OCT 2006

L1 1 S US20040063650/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 07:57:41 ON 26 OCT 2006

L2 5 S E1-E5
E ACROLEIN/CN
L3 1 S E3
L4 1 S 74-93-1/RN
L5 1 S 107-02-8/RN
L6 1 S 64-19-7/RN

FILE 'CASREACT' ENTERED AT 08:07:41 ON 26 OCT 2006

SET NOTICE DISPLAY 1
SET NOTICE LOGIN DISPLAY
L7 1 S 140:287102/AN
L8 STR
L9 1 S L8
L10 12 S L8 FUL

FILE 'HCAPLUS' ENTERED AT 08:38:48 ON 26 OCT 2006

L11 7412 S L4
L12 12927 S L5
L13 100180 S L6
L14 1076 S (L11 OR L12) AND L13
L15 295 S L14 AND RACT/RL
L16 47 S L15 AND ALIPHAT?/SC
L17 31 S L16 AND CAT/RL
L18 2 S L17 AND THIO?

FILE 'REGISTRY' ENTERED AT 08:45:07 ON 26 OCT 2006

L19 1 S 3268-49-3/RN

FILE 'HCAPLUS' ENTERED AT 08:45:30 ON 26 OCT 2006

L20 1199 S L19
L21 56 S L14 AND L20
L22 8 S L21 AND PREP/RL
L23 8 S L15 AND L20
L24 10 S L22 OR L23
L25 79 S L20(L)PREP/RL
L26 37 S L25 AND L11
L27 33 S L26 AND ALIPHAT?/SC,SX
L28 39 S L24 OR L27
L29 35 S L28 AND (1840-2002)/PRY,AY,PY
L30 1 S L29 AND L1

=> d que 129

L4 1 SEA FILE=REGISTRY ABB=ON 74-93-1/RN
L5 1 SEA FILE=REGISTRY ABB=ON 107-02-8/RN
L6 1 SEA FILE=REGISTRY ABB=ON 64-19-7/RN
L11 7412 SEA FILE=HCAPLUS ABB=ON L4
L12 12927 SEA FILE=HCAPLUS ABB=ON L5
L13 100180 SEA FILE=HCAPLUS ABB=ON L6

L14 1076 SEA FILE=HCAPLUS ABB=ON (L11 OR L12) AND L13
 L15 295 SEA FILE=HCAPLUS ABB=ON L14 AND RACT/RL
 L19 1 SEA FILE=REGISTRY ABB=ON 3268-49-3/RN
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 L22 8 SEA FILE=HCAPLUS ABB=ON L21 AND PREP/RL
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 L25 79 SEA FILE=HCAPLUS ABB=ON L20(L) PREP/RL
 L26 37 SEA FILE=HCAPLUS ABB=ON L25 AND L11
 L27 33 SEA FILE=HCAPLUS ABB=ON L26 AND ALIPHAT?/SC, SX
 L28 39 SEA FILE=HCAPLUS ABB=ON L24 OR L27
 L29 35 SEA FILE=HCAPLUS ABB=ON L28 AND (1840-2002)/PRY,AY,PY

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 09:12:05 ON 26 OCT 2006

=> d l29 1-35 ibib abs hitstr hitind

L29 ANSWER 1 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:348011 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:356948
 TITLE: Catalytic addition reaction for the production
 of 3-(methylthio)propanal from mercaptomethane
 and acrolein
 INVENTOR(S): Rey, Patrick
 PATENT ASSIGNEE(S): Adisseo France S.A.S., Fr.
 SOURCE: Eur. Pat. Appl., 10 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1413573	A1	20040428	EP 2002-356211	2002 1024

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 EE, SK
 CA 2495746 AA 20040506 CA 2003-2495746
 2003
 1014

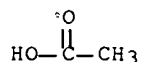
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WO 2004037774 A1 20040506 WO 2003-IB4557
 2003
 1014

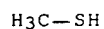
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 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
 MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO,

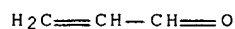
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 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL,
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
 GQ, GW, ML, MR, NE, SN, TD, TG
 AU 2003267771 A1 20040513 AU 2003-267771
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 EP 1556343 A1 20050727 EP 2003-748466
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 EE, HU, SK
 BR 2003015385 A 20050823 BR 2003-15385
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 CN 1705641 A 20051207 CN 2003-80101589
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 JP 2006515834 T2 20060608 JP 2004-546263
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 US 2005240048 A1 20051027 US 2005-524548
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 NO 2005002471 A 20050725 NO 2005-2471
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 PRIORITY APPLN. INFO.: EP 2002-356211 A
 2002
 1024
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 WO 2003-IB4557 W
 2003
 1014
 OTHER SOURCE(S): CASREACT 140:356948
 AB A process for the production of 3-(methylthio)propanal comprises reacting
 mercaptomethane and acrolein in the presence of a catalyst comprising an
 organic base such as an N-alkylmorpholine (e.g., 4-methylmorpholine).
 IT 64-19-7, Acetic acid, uses
 (addition reaction catalysts in the production of 3-
 (methylthio)propanal from mercaptomethane and acrolein)
 RN 64-19-7 HCAPLUS
 CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



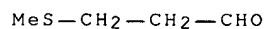
IT 74-93-1, Mercaptomethane, reactions 107-02-8,
Acrolein, reactions
(catalytic addition reaction for the production of
3-(methylthio)propanal from mercaptomethane and acrolein)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



RN 107-02-8 HCAPLUS
CN 2-Propenal (9CI) (CA INDEX NAME)



IT 3268-49-3P, 3-(Methylthio)propanal
(catalytic addition reaction for the production of
3-(methylthio)propanal from mercaptomethane and acrolein)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IC ICM C07C319-18
ICS C07C323-22
CC 23-14 (Aliphatic Compounds)
Section cross-reference(s): 45, 67
IT 64-18-6, Formic acid, uses 64-19-7, Acetic acid, uses
79-09-4, Propanoic acid, uses 100-74-3, 4-Ethylmorpholine
107-92-6, Butyric acid, uses 109-02-4, 1-Methylmorpholine
(addition reaction catalysts in the production of 3-
(methylthio)propanal from mercaptomethane and acrolein)
IT 74-93-1, Mercaptomethane, reactions 107-02-8,
Acrolein, reactions
(catalytic addition reaction for the production of
3-(methylthio)propanal from mercaptomethane and acrolein)
IT 3268-49-3P, 3-(Methylthio)propanal
(catalytic addition reaction for the production of
3-(methylthio)propanal from mercaptomethane and acrolein)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 2 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:269858 HCAPLUS Full-text
DOCUMENT NUMBER: 140:287102

TITLE: Method for producing 3-methylthiopropenal from acrolein and methyl mercaptan
 INVENTOR(S): Shiozaki, Tetsuya; Haga, Toru
 PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan
 SOURCE: U.S. Pat. Appl. Publ., 4 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004063650	A1	20040401	US 2003-665006	2003 0922
JP 2004115461	A2	20040415	JP 2002-282874	2002 0927
EP 1408029	A1	20040414	EP 2003-21191	2003 0924
CN 1496979	A	20040519	CN 2003-125534	2003 0925
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.: JP 2002-282874 A 2002 0927				

OTHER SOURCE(S): CASREACT 140:287102

AB 3-Methylthiopropenal is produced in high yield and selectivity by supplying acrolein and Me mercaptan together or sequentially with an acidic compound (e.g., acetic acid) and a basic compound (e.g., pyridine) into a reaction system to react the acrolein with the Me mercaptan, where the basic compound is used in an amount of about 0.3 mol or less per mol of the acidic compound

IT 74-93-1, Methyl mercaptan, reactions 107-02-8, Acrolein, reactions (method for producing 3-methylthiopropenal from acrolein and Me mercaptan)

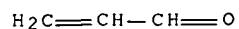
RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

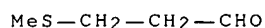
H₃C-SH

RN 107-02-8 HCAPLUS

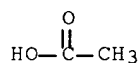
CN 2-Propenal (9CI) (CA INDEX NAME)



IT **3268-49-3P**, 3-Methylthiopropenal
 (method for producing 3-methylthiopropenal from acrolein and Me
 mercaptan)
 RN 3268-49-3 HCAPLUS
 CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT **64-19-7**, Acetic acid, uses
 (method for producing 3-methylthiopropenal from acrolein and Me
 mercaptan using)
 RN 64-19-7 HCAPLUS
 CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C07C323-22
 INCL 514041000
 CC 23-14 (**Aliphatic** Compounds)
 Section cross-reference(s): 45
 IT **74-93-1**, Methyl mercaptan, reactions **107-02-8**,
 Acrolein, reactions
 (method for producing 3-methylthiopropenal from acrolein and Me
 mercaptan)
 IT **3268-49-3P**, 3-Methylthiopropenal
 (method for producing 3-methylthiopropenal from acrolein and Me
 mercaptan)
 IT **64-19-7**, Acetic acid, uses 110-86-1, Pyridine, uses
 (method for producing 3-methylthiopropenal from acrolein and Me
 mercaptan using)

L29 ANSWER 3 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:639035 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:166201
 TITLE: Process for purification of acrolein
 INVENTOR(S): Gros, Georges; Garrait, Michel; Rey, Patrick
 PATENT ASSIGNEE(S): Aventis Animal Nutrition S.A., Fr.
 SOURCE: Fr. Demande, 20 pp.
 CODEN: FRXXBL
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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FR 2835831	A1	20030815	FR 2002-1686	2002 0212
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FR 2835831	B1	20060901		
CA 2474416	AA	20030821	CA 2003-2474416	2003 0212
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WO 2003068721	A1	20030821	WO 2003-FR454	2003 0212
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RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003226883	A1	20030904	AU 2003-226883	2003 0212
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EP 1474374	A1	20041110	EP 2003-739531	2003 0212
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BR 2003007450	A	20041228	BR 2003-7450	2003 0212
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US 2005103616	A1	20050519	US 2003-500715	2003 0212
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CN 1630627	A	20050622	CN 2003-803721	2003 0212
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JP 2005521684	T2	20050721	JP 2003-567856	2003 0212
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NO 2004003715	A	20040906	NO 2004-3715	2004

0906

PRIORITY APPLN. INFO.:

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0212

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WO 2003-FR454

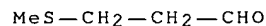
W
2003
0212

AB The present invention thus has as an aim a continuous process of purification of the acrolein in which: (1) an aqueous acrolein solution deprived of noncondensable gas is fed into a distillation column; (2) an aqueous mixture is drawn off from the bottom; (3) a mixture based on acrolein and water is drawn off from the head; (4) the head fraction is cooled to sep. the water from an acrolein-rich gas, and (5) acrolein is isolated from the gas from (4). The resulting acrolein is suitable for manufacture of 3-methylthiopropionaldehyde by reaction with Me mercaptan.

IT **3268-49-3P**, 3-Methylthiopropionaldehyde
(purification of acrolein by distillation of aqueous compns. for manufacture of methylthiopropionaldehyde by reaction with Me mercaptan)

RN 3268-49-3 HCAPLUS

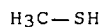
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME).



IT **74-93-1**, Methyl mercaptan, reactions
(purification of acrolein by distillation of aqueous compns. for manufacture of methylthiopropionaldehyde by reaction with Me mercaptan)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C045-82
ICS C07C047-22; C07C319-28; C07C321-18; A23K001-22

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): **23**

IT **3268-49-3P**, 3-Methylthiopropionaldehyde
(purification of acrolein by distillation of aqueous compns. for manufacture of methylthiopropionaldehyde by reaction with Me mercaptan)

IT **74-93-1**, Methyl mercaptan, reactions
(purification of acrolein by distillation of aqueous compns. for manufacture of methylthiopropionaldehyde by reaction with Me mercaptan)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

ACCESSION NUMBER: 2001:112320 HCAPLUS Full-text

DOCUMENT NUMBER: 134:164826

TITLE: Manufacture of acrolein and acrolein
derivatives from Diels-Alder reaction or
Michael additionINVENTOR(S): Etzkorn, William George; Galley, Richard A.;
Snead, Thomas E.; Brockwell, Jonathan Lester;
Young, Mark Anderson; Maher, John Michael;
Warren, Barbara KnightPATENT ASSIGNEE(S): Union Carbide Chemicals and Plastics
Technology Corporation, USA

SOURCE: U.S., 11 pp., Cont.-in-part of WO9736848.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

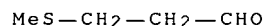
FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

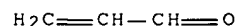
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6187963	B1	20010213	US 1998-169798	1998 1009
WO 9736848	A1	19971009	WO 1997-US5100	1997 0327
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EP 891316	A1	19990120	EP 1997-917687	1997 0327
EP 891316	B1	20030521		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				
PRIORITY APPLN. INFO.:			EP 1997-917687	A 1997 0327
			WO 1997-US5100	A2 1997 0327
			US 1996-14507P	P 1996 0401
			US 1996-14510P	P 1996 0401
			US 1996-14678P	P

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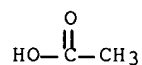
- AB A process for producing an acrolein derivative comprises (i) passing a propylene feed stream comprising propylene, oxygen, and a recycle gas comprising propane, oxygen, and at least one of carbon monoxide and carbon dioxide to an acrolein reaction zone wherein the propylene feed stream is contacted with an acrolein reaction catalyst at conditions effective to promote the formation of acrolein to provide an acrolein effluent stream comprising acrolein, propane, acetaldehyde and water; (ii) passing the acrolein effluent stream to an acrolein separation zone wherein the acrolein effluent stream is partially condensed to provide a liquid acrolein product stream comprising acrolein, acetaldehyde, and water and a recycle gas stream comprising the recycle gas; (iii) passing the acrolein product stream and a co-reactant capable of undergoing a Diels-Alder reaction or Michael addition with acrolein to an acrolein derivative reaction zone and contacting the acrolein and co-reactant under conditions effective to convert the acrolein and the co-reactant into an acrolein derivative; and (iv) recycling at least a portion of the recycle gas stream to the acrolein reaction zone. The process is characterized in that the propylene feed stream comprises an amount of propane of from about 5 to 70 volume% and effective to provide a propylene-to-acrolein reaction efficiency of from about 75 to 90 mol%.
- IT **3268-49-3P**, 3-(Methylthio)propanal
(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)
- RN 3268-49-3 HCAPLUS
- CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



- IT **107-02-8P**, Acrolein, preparation
(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)
- RN 107-02-8 HCAPLUS
- CN 2-Propenal (9CI) (CA INDEX NAME)



- IT **64-19-7**, Acetic acid, reactions **74-93-1**, Methyl mercaptan, reactions
(manufacture of acrolein and acrolein derivs. from Diels-Alder reaction or Michael addition)
- RN 64-19-7 HCAPLUS
- CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IC C07C027-10; C07C045-27; C07C045-32
INCL 568469900
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23
IT 100-73-2P, 2-Formyl-3,4-dihydro-2H-pyran 108-99-6P,
β-Picoline 110-86-1P, Pyridine, preparation 111-30-8P,
Glutaraldehyde 504-63-2P, 1,3-Propanediol 1321-16-0P,
Tetrahydrobenzaldehyde 3268-49-3P; 3-
(Methylthio)propanal 31906-04-4P, 4-(4-Hydroxy-4-methylpentyl)-3-
cyclohexene-1-carboxaldehyde 75454-86-3P 84315-07-1P
(manufacture of acrolein and acrolein derivs. from Diels-Alder
reaction or Michael addition)
IT 107-02-8P, Acrolein, preparation 2134-29-4P,
3-Hydroxypropionaldehyde 4454-05-1P, 2-Methoxy-3,4-dihydro-2H-
pyran
(manufacture of acrolein and acrolein derivs. from Diels-Alder
reaction or Michael addition)
IT 56-81-5, 1,2,3-Propanetriol, reactions 57-55-6, Propylene
glycol, reactions 64-17-5, Ethanol, reactions 64-19-7,
Acetic acid, reactions 65-85-0, Benzoic acid, reactions
67-56-1, Methanol, reactions 67-63-0, Isopropanol, reactions
74-93-1, Methyl mercaptan, reactions 79-09-4, Propionic
acid, reactions 106-99-0, Butadiene, reactions 107-18-6, Allyl
alcohol, reactions 107-21-1, Ethylene glycol, reactions
107-25-5, Methyl vinyl ether 108-24-7, Acetic anhydride
115-07-1, Propylene, reactions 115-77-5, Pentaerythritol,
reactions 123-35-3, Myrcene 543-39-5 7664-41-7, Ammonia,
reactions 7732-18-5, Water, reactions 30700-92-6
(manufacture of acrolein and acrolein derivs. from Diels-Alder
reaction or Michael addition)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:909250 HCAPLUS Full-text
DOCUMENT NUMBER: 134:43711
TITLE: Oxidative processes for the manufacture of
acrolein from propylene and oxygen
INVENTOR(S): Etzkorn, William George; Brockwell, Jonathan
Lester; Young, Mark Anderson; Maher, John
Michael; Warren, Barbara Knight
PATENT ASSIGNEE(S): Union Carbide Chemicals and Plastics
Technology Corporation, USA
SOURCE: U.S., 10 pp., Cont.-in-part of Appl. No.
PCT/US97/05100.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6166263	A	20001226	US 1998-169335	1998 1009
WO 9736848	A1	19971009	WO 1997-US5100	1997 0327
<p>W: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG RW: AU, BB, BG, BR, CA, CN, CZ, HU, IS, JP, KP, KR, LK, LR, LV, MK, MX, NO, NZ, PL, SG, SI, TR, TT, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM</p>				
PRIORITY APPLN. INFO.:			WO 1997-US5100	A2 1997 0327
			US 1996-14507P	P 1996 0401
			US 1996-14510P	P 1996 0401
			US 1996-14678P	P 1996 0401
AB	<p>Acrolein is produced in high yield and selectivity in a process comprising: (i) passing a propylene feedstream comprising propylene, oxygen and a recycle gas comprising propane, oxygen and carbon monoxide and/or carbon dioxide to an acrolein reaction zone where the propylene feedstream is contacted with an acrolein reaction catalyst to provide an acrolein effluent stream comprising acrolein, propane, acetaldehyde and water; (ii) passing the acrolein effluent stream to an acrolein separation zone where the acrolein effluent stream is partially condensed to provide a liquid acrolein product stream comprising acrolein, acetaldehyde and water and a recycle gas stream comprising the recycle gas; and (iii) recycling a portion of the recycle gas stream to the acrolein reaction zone. The propylene feedstream comprises 5-70 volume% propane and is effective to provide a propylene-to-acrolein reaction efficiency of 75-90 mol%. The presence of propane in the propylene-to-acrolein reaction can enhance the efficiency of the processes.</p>			
IT	74-93-1, Methanethiol, reactions (addition reactions of acrolein with)			
RN	74-93-1 HCAPLUS			
CN	Methanethiol (8CI, 9CI) (CA INDEX NAME)			

IT 3268-49-3P
(preparation of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IC C07C045-32
INCL 568469900
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48
IT 74-93-1, Methanethiol, reactions 106-99-0, Butadiene,
reactions 543-39-5
(addition reactions of acrolein with)
IT 78-19-3P 100-73-2P, 2-Formyl-3,4-dihydro-2H-pyran 504-63-2P,
1,3-Propanediol 1321-16-0P, Tetrahydrobenzaldehyde 2806-84-0P,
3-(Methoxy)propionaldehyde 3268-49-3P 4454-05-1P,
2-Methoxy-3,4-dihydro-2H-pyran 31906-04-4P, 4-(4-Hydroxy-4-
methylpentyl)-3-cyclohexene-1-carboxaldehyde 84315-07-1P
(preparation of)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 6 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:289080 HCAPLUS Full-text
DOCUMENT NUMBER: 132:309995
TITLE: Processes for the manufacture of
3-(methylthio)propanal
INVENTOR(S): Brockwell, Jonathan L.; Young, Mark A.;
Etzkorn, William G.; Warren, Barbara K.;
Maher, John M.
PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology
Corporation, USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6057481	A	20000502	US 1998-155750	1998 1001
WO 9736848	A1	19971009	WO 1997-US5100	1997 0327

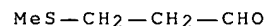
W: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI,
FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
CI, CM, GA, GN, ML, MR, NE, SN, TD, TG
RW: AU, BB, BG, BR, CA, CN, CZ, HU, IS, JP, KP, KR, LK, LR,

LV, MK, MX, NO, NZ, PL, SG, SI, TR, TT, US, UZ, VN, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM

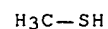
AU 9725947	A1	19971022	AU 1997-25947	1997 0327
			<--	
JP 2002503206	T2	20020129	JP 1997-535453	1997 0327
			<--	
JP 3490459	B2	20040126		
AT 240924	E	20030615	AT 1997-917687	1997 0327
			<--	
PRIORITY APPLN. INFO.:			US 1996-14507P	P 1996 0401
			<--	
			US 1996-14510P	P 1996 0401
			<--	
			US 1996-14678P	P 1996 0401
			<--	
			WO 1997-US5100	W 1997 0327

AB A process for the conversion of propylene to 3- (methylthio)propanal (I) by converting propylene to acrolein and converting the acrolein with Me mercaptan to I is described. The processes utilize oxygen and recycle propane to the acrolein reactor. The process feeds can comprise, propane, propylene or their mixts. The presence of propane in the propylene-to-acrolein reaction can enhance the efficiency of the processes.

IT 3268-49-3P, 3-(Methylthio)propanal
 (processes for the manufacture of 3-(methylthio)propanal)
 RN 3268-49-3 HCAPLUS
 CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT 74-93-1, Methyl mercaptan, reactions
 (processes for the manufacture of 3-(methylthio)propanal)
 RN 74-93-1 HCAPLUS
 CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C319-02

INCL 568041000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 48

IT 3268-49-3P, 3-(Methylthio)propanal

(processes for the manufacture of 3-(methylthio)propanal)

IT 74-93-1, Methyl mercaptan, reactions 74-98-6, Propane,
reactions

(processes for the manufacture of 3-(methylthio)propanal)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 7 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:450926 HCAPLUS Full-text

DOCUMENT NUMBER: 131:89346

TITLE: Continuous process for the preparation of
3-(methylthio)propanal from acrolein and
methyl mercaptan

INVENTOR(S): Hsu, Yung C.; Ruest, Dennis A.

PATENT ASSIGNEE(S): Novus International, Inc., USA

SOURCE: U.S., 26 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 5925794	A	19990720	US 1996-668572	1996 0620
US 5352837	A	19941004	<-- US 1993-73763	1993 0608
US 5637766	A	19970610	<-- US 1995-557699	1995 1113
CN 1188470	A	19980722	<-- CN 1996-194943	1996 0621
CN 1120834	B	20030910	<--	
US 6031138	A	20000229	US 1998-102025	1998 0622
US 6320076	B1	20011120	<-- US 1999-470407	1999 1222
PRIORITY APPLN. INFO.:			<-- US 1993-73763	A2 1993 0608
			<-- US 1994-273216	B1

1994

0711

<--

US 1995-421P

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1995

0622

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US 1995-557699

A2

1995

1113

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US 1996-667099

B1

1996

0620

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US 1996-668572

B1

1996

0620

<--

US 1998-102025

A3

1998

0622

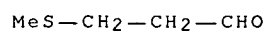
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AB 3-(Methylthio)propanal (I) is prepared in a continuous process in which a liquid reaction medium (containing I, Me mercaptan, and an addition reaction catalyst) is contacted with a gaseous acrolein feed stream (containing acrolein vapor and noncondensable gas) in a gas-liquid contact zone. Acrolein is transferred from the acrolein feed stream to the reaction medium and reacted with Me mercaptan in that medium to produce a liquid reaction product containing I. The noncondensable gas is separated from the liquid reaction product, the reaction product is divided into a product fraction and a circulating fraction, and the circulating fraction is recycled to the gas-liquid contact zone. Process flow diagrams are presented.

IT **3268-49-3P**, 3-(Methylthio)propanal
(continuous process for the preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)

RN 3268-49-3 HCAPLUS

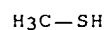
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT **74-93-1**, Methyl mercaptan, reactions
(continuous process for the preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C319-00

INCL 568041000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): **23**, 48

IT 107-02-8P, 2-Propenal, preparation **3268-49-3P**,
 3-(Methylthio)propanal 59121-24-3P, 4-(Methylthio)butyronitrile
 (continuous process for the preparation of 3-(methylthio)propanal
 from acrolein and Me mercaptan)

IT 74-90-8, Hydrogen cyanide, reactions **74-93-1**, Methyl
 mercaptan, reactions 115-07-1, 1-Propene, reactions
 (continuous process for the preparation of 3-(methylthio)propanal
 from acrolein and Me mercaptan)

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L29 ANSWER 8 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:523142 HCAPLUS Full-text

DOCUMENT NUMBER: 129:275013

TITLE: Quantification of potent odorants in Camembert
 cheese and calculation of their odor activity
 values

AUTHOR(S): Kubickova, J.; Grosch, W.

CORPORATE SOURCE: Deutsche Forschungsanstalt fur
 Lebensmittelchemie, Garching, D-85748, Germany

SOURCE: International Dairy Journal (1998),
 8(1), 17-23
 CODEN: IDAJE6; ISSN: 0958-6946

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

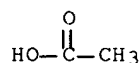
LANGUAGE: English

AB Sixteen neutral compds., which had been screened in preceding dilution expts.
 as potent odorants of Camembert cheese, were quantified by stable isotope
 dilution assays in two samples of this cheese. In addition, seven volatile
 acids were determined by using conventional methods. The odor activity values
 (OAVs) of the compds. were calculated by dividing their concns. in the cheese
 samples by their odor thresholds in sunflower oil (neutral compds.) and water
 (acids). In the class of the neutral odorants, the highest OAVs were found
 for methanethiol, methional and di-Me sulfide all of which contributed to the
 sulfury, garlic-like note in the odor profile of Camembert. Although the OAV
 of 1-octen-3-ol was relatively low, this alc. and the corresponding ketone
 were responsible for the mushroom-like note. In the acidic fraction, acetic,
 butyric and capric acid showed the highest OAVs.

IT **64-19-7**, Acetic acid, biological studies **74-93-1**
 , Methanethiol, biological studies **3268-49-3**, Methional
 (quantification of potent odorants in Camembert cheese and
 calcn. of odor activity values)

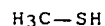
RN 64-19-7 HCAPLUS

CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

CC 17-8 (Food and Feed Chemistry)
IT 60-12-8, 2-Phenylethanol **64-19-7**, Acetic acid,
biological studies 66-25-1, Hexanal **74-93-1**,
Methanethiol, biological studies 75-07-0, Acetaldehyde,
biological studies 75-18-3, Dimethyl sulfide 79-09-4,
Propionic acid, biological studies 103-45-7, Phenethyl acetate
107-92-6, Butyric acid, biological studies 112-12-9,
2-Undecanone 124-07-2, Caprylic acid, biological studies
142-62-1, Caproic acid, biological studies 334-48-5, Decanoic
acid 431-03-8, 2,3-Butanedione 503-74-2, 3-Methylbutyric acid
590-86-3, 3-Methylbutanal 705-86-2, δ -Decalactone
1618-26-4, Methylene bis(methylsulfide) **3268-49-3**,
Methional 3391-86-4, 1-Octen-3-ol 3658-80-8, Dimethyl
trisulfide 4312-99-6, 1-Octen-3-one 85213-22-5,
2-Acetyl-1-pyrroline

(quantification of potent odorants in Camembert cheese and
calcn. of odor activity values)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 9 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:31172 HCAPLUS Full-text

DOCUMENT NUMBER: 128:114715

TITLE: Processes for the preparation of
3-(methylthio)propanal and
2-hydroxy-4-(methylthio)butanenitrile

INVENTOR(S): Blackburn, Thomas F.; Pellegrin, Paul F.

PATENT ASSIGNEE(S): Novus International, Inc., USA

SOURCE: U.S., 9 pp., Cont.-in-part of U.S. 5,663,409.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 5705675	A	19980106	US 1995-581249	1995 1229
			<--	
US 5663409	A	19970902	US 1995-476356	1995 0607
			<--	
ZA 9604335	A	19960820	ZA 1996-4335	

				1996 0528
			<--	
WO 9640631	A1	19961219	WO 1996-US9060	
				1996 0604
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W:	AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI			
RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML			
AU 9659873	A1	19961230	AU 1996-59873	
				1996 0604
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AU 714151	B2	19991223		
EP 830341	A1	19980325	EP 1996-917222	
				1996 0604
			<--	
EP 830341	B1	20010905		
R:	BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE			
CN 1189818	A	19980805	CN 1996-195190	
				1996 0604
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CN 1092184	B	20021009		
JP 11511119	T2	19990928	JP 1997-501471	
				1996 0604
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RU 2173681	C2	20010920	RU 1998-100220	
				1996 0604
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ES 2160819	T3	20011116	ES 1996-917222	
				1996 0604
			<--	
PT 830341	T	20011228	PT 1996-917222	
				1996 0604
			<--	
CN 1510030	A	20040707	CN 2002-2002126457	
				1996 0604
			<--	
PRIORITY APPLN. INFO.:			US 1995-476356	A2
				1995 0607
			<--	
			US 1995-581249	A
				1995 1229
			<--	
			WO 1996-US9060	W
				1996

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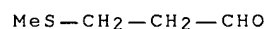
OTHER SOURCE(S): CASREACT 128:114715; MARPAT 128:114715

AB A catalytic processes for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile using novel addition catalysts is described. The novel addition catalysts include: triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, 4-dimethylaminopyridine, picoline, pyrazine, trialkylamines, and tertiary amines. E.g., reaction of MeSH and acrolein in presence of poly-4-vinylpyridine gave 89.0% 3-(methylthio)propanal. The aldehyde product, containing the poly-4-vinylpyridine catalyst, was converted to the nitrile in the same reactor by treatment with HCN. The yield of nitrile was 72.9%.

IT **3268-49-3P**, 3-(Methylthio)propanal
(preparation of (methylthio)propanal and
hydroxy(methylthio)butanenitrile)

RN 3268-49-3 HCAPLUS

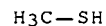
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT **74-93-1**, Methyl mercaptan, reactions
(preparation of (methylthio)propanal and
hydroxy(methylthio)butanenitrile)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C323-22
ICS C07C253-00; C07C253-30; C07C319-20

INCL 558351000

CC 23-9 (Aliphatic Compounds)

Section cross-reference(s): 45

IT **3268-49-3P**, 3-(Methylthio)propanal
(preparation of (methylthio)propanal and
hydroxy(methylthio)butanenitrile)

IT **74-93-1**, Methyl mercaptan, reactions 107-02-8, Acrolein,
reactions

(preparation of (methylthio)propanal and
hydroxy(methylthio)butanenitrile)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L29 ANSWER 10 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:165266 HCAPLUS Full-text

DOCUMENT NUMBER: 126:157183

TITLE: Process for the continuous preparation of
3-(methylthio)propanal from acrolein and
methyl mercaptan

INVENTOR(S): Hsu, Yung C.

PATENT ASSIGNEE(S): Novus International, Inc., USA

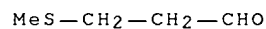
SOURCE: PCT Int. Appl., 85 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9700858	A1	19970109	WO 1996-US10920	1996 0621
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W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML				
US 5905171	A	19990518	US 1996-667099	1996 0620
<--				
AU 9663959	A1	19970122	AU 1996-63959	1996 0621
<--				
AU 726921	B2	20001123		
EP 842149	A1	19980520	EP 1996-923452	1996 0621
<--				
EP 842149	B1	20030205		
R: BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE				
CN 1188470	A	19980722	CN 1996-194943	1996 0621
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CN 1120834	B	20030910		
JP 11508266	T2	19990721	JP 1997-504005	1996 0621
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RU 2172734	C2	20010827	RU 1998-100590	1996 0621
<--				
ES 2192607	T3	20031016	ES 1996-923452	1996 0621
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PRIORITY APPLN. INFO.:			US 1995-421P	P 1995 0622
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			US 1996-667099	A 1996 0620

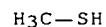
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OTHER SOURCE(S): CASREACT 126:157183

- AB In the title process, a liquid reaction, medium containing 3-(methylthio)propanal and a catalyst for the reaction between Me mercaptan and acrolein, is contacted with a gaseous acrolein feed stream in a gas-liquid contact zone. The gaseous acrolein feed stream comprises acrolein vapor and noncondensable gas and the acrolein is transferred from the acrolein feed stream to the reaction medium. Me mercaptan, introduced into the reaction medium, reacts with the acrolein in that medium, producing a liquid reaction product containing 3-(methylthio)propanal. The noncondensable gas is then separated from the liquid reaction product the reaction product is divided into a produce fraction and a circulating fraction, and the circulating fraction is recycled to the gas/liquid contact zone. Process flow diagrams are presented.
- IT **3268-49-3P**, 3-(Methylthio)propanal
(process for the continuous preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)
- RN 3268-49-3 HCAPLUS
- CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



- IT **74-93-1**, Methanethiol, reactions
(process for the continuous preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)
- RN 74-93-1 HCAPLUS
- CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



- IC ICM C07C319-18
ICS C07C323-22
- CC 23-14 (**Aliphatic** Compounds)
Section cross-reference(s): 45, 48
- IT **3268-49-3P**, 3-(Methylthio)propanal
(process for the continuous preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)
- IT **74-93-1**, Methanethiol, reactions 107-02-8, Acrolein, reactions
(process for the continuous preparation of 3-(methylthio)propanal from acrolein and Me mercaptan)

L29 ANSWER 11 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:111227 HCAPLUS Full-text

DOCUMENT NUMBER: 126:117741

TITLE: Processes and catalysts for the preparation of
3-(methylthio)propanal and
2-hydroxy-4-(methylthio)butanenitrile

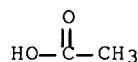
INVENTOR(S): Blackburn, Thomas F.; Pellegrin, Paul F.;
 Kranz, Allen H.
 PATENT ASSIGNEE(S): Novus International, Inc., USA
 SOURCE: PCT Int. Appl., 36 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9640631	A1	19961219	WO 1996-US9060	1996 0604
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W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML				
US 5663409	A	19970902	US 1995-476356	1995 0607
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US 5705675	A	19980106	US 1995-581249	1995 1229
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AU 9659873	A1	19961230	AU 1996-59873	1996 0604
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AU 714151	B2	19991223		
EP 830341	A1	19980325	EP 1996-917222	1996 0604
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EP 830341	B1	20010905		
R: BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE				
JP 11511119	T2	19990928	JP 1997-501471	1996 0604
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RU 2173681	C2	20010920	RU 1998-100220	1996 0604
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PRIORITY APPLN. INFO.:			US 1995-476356	A 1995 0607
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			US 1995-581249	A 1995 1229
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			WO 1996-US9060	W

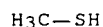
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OTHER SOURCE(S): MARPAT 126:117741

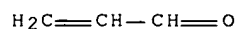
- AB 3-(Methylthio)propanal (I) is prepared by the addition reaction of MeSH with acrolein, 2-hydroxy-4-(methylthio)butanenitrile is prepared by the addition reaction of I with HCN, and both reactions are conducted in the presence of an addition reaction catalysts comprising ≥ 1 organic base(s) (e.g., triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, 4-dimethylaminopyridine, picoline, pyrazine, trialkylamines, etc.).
- IT 64-19-7, Acetic acid, reactions 74-93-1, Methanethiol, reactions 107-02-8, Acrolein, reactions (processes and catalysts for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile)
- RN 64-19-7 HCAPLUS
- CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



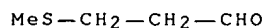
- RN 74-93-1 HCAPLUS
- CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



- RN 107-02-8 HCAPLUS
- CN 2-Propenal (9CI) (CA INDEX NAME)



- IT 3268-49-3P, 3-(Methylthio)propanal (processes and catalysts for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile)
- RN 3268-49-3 HCAPLUS
- CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



- IC ICM C07C319-18
- ICS C07C319-20; C07C323-22; C07C323-60
- CC 23-19 (Aliphatic Compounds)
- Section cross-reference(s): 45, 67

IT 64-19-7, Acetic acid, reactions 74-90-8, Hydrogen cyanide, reactions 74-93-1, Methanethiol, reactions 107-02-8, Acrolein, reactions 7664-38-2, Phosphoric acid, reactions 7664-93-9, Sulfuric acid, reactions (processes and catalysts for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile)

IT 3268-49-3P, 3-(Methylthio)propanal (processes and catalysts for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile)

L29 ANSWER 12 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1996:537082 HCAPLUS Full-text
 DOCUMENT NUMBER: 125:167345
 TITLE: Preparation of 2-hydroxy-4-(methylmercapto)butyric acid from acrolein and methyl mercaptan without using sulfuric acid
 INVENTOR(S): Matsuoka, Kazuyuki
 PATENT ASSIGNEE(S): Daicel Chem, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08157447	A2	19960618	JP 1993-159132	1993 0629
JP 3169103	B2	20010521	JP 1993-159132	1993 0629

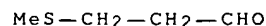
PRIORITY APPLN. INFO.: <--

AB MeS(CH₂)₂CH(OH)CO₂H (I), which is used as a feed additive, is prepared from CH₂:CHCHO and MeSH, via MeS(CH₂)₂CHO, MeS(CH₂)₂CH(OH)CN (II), MeS(CH₂)₂CH(OH)CONH₂ (III), and esters of MeS(CH₂)₂CH(OH)CO₂H. Hydration of II in aqueous Me₂CO in the presence of MnO₂ at 60° for 6 h gave 89.0% III, which was autoclaved with MeOH and Pb nitrate at 170° and 20 kg/cm² for 5 h with removing NH₃ to afford MeS(CH₂)₂CH(OH)CO₂Me at 83% conversion and 85% selectivity. Hydrolysis of the ester with Amberlyst 15 in H₂O at 95° for 5 h gave I at 98.8% conversion and 97.1% selectivity.

IT 3268-49-3P, 3-(Methylmercapto)propionaldehyde (preparation of hydroxy(methylmercapto)butyric acid from acrolein and Me mercaptan without using sulfuric acid)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT 74-93-1, Methyl mercaptan, reactions (preparation of hydroxy(methylmercapto)butyric acid from acrolein and Me mercaptan without using sulfuric acid)

RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IC ICM C07C323-52
ICS C07C319-18; C07C319-20
CC 23-17 (**Aliphatic** Compounds)
Section cross-reference(s): 17
IT **3268-49-3P**, 3-(Methylmercapto)propionaldehyde
17773-41-0P, 2-Hydroxy-4-(methylthio)butyronitrile 49540-21-8P,
2-Hydroxy-4-(methylthio)butyramide 52703-96-5P
(preparation of hydroxy(methylmercapto)butyric acid from acrolein
and Me mercaptan without using sulfuric acid)
IT **74-93-1**, Methyl mercaptan, reactions 107-02-8,
2-Propenal, reactions
(preparation of hydroxy(methylmercapto)butyric acid from acrolein
and Me mercaptan without using sulfuric acid)

L29 ANSWER 13 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:252233 HCAPLUS Full-text
DOCUMENT NUMBER: 124:288769
TITLE: Preparation of 3-(methylthio)propanal
INVENTOR(S): Hsu, Yung C.; Ruest, Dennis A.
PATENT ASSIGNEE(S): Novus International, Inc., USA
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9601810	A1	19960125	WO 1995-US8532	1995 0706

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GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LV, MD,
MG, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, TJ,
TM, TT, UA, UG, UZ, VN
RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR,
IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,
GN, ML, MR, NE, SN, TD, TG

AU 9530939	A1	19960209	AU 1995-30939	1995 0706
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AU 699841 B2 19981217
EP 770062 A1 19970502 EP 1995-926631
1995
0706

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R: BE, DE, DK, ES, FR, GB, IE, IT, LU, MC, NL, PT

CN 1152913	A	19970625	CN 1995-194068	1995 0706
JP 10504812	T2	19980512	JP 1996-504405	1995 0706
RU 2149159	C1	20000520	RU 1997-102147	1995 0706
CN 1222507	A	19990714	CN 1998-115072	1998 0624
PRIORITY APPLN. INFO.:			US 1994-273216	A 1994 0711
			WO 1995-US8532	W 1995 0706

AB The title process comprises condensation of CH₂:CHCHO from a feed stream in a gas/liquid contact zone containing MeSCH₂CH₂CHO, MeSH, and catalyst, separation of non-condensable material from the feed stream, and withdrawal of liquid which is divided into a product stream and a stream which is returned to the gas/liquid contact zone.

IT **3268-49-3P**, 3-(Methylthio)propanal
(preparation of 3-(methylthio)propanal)

RN 3268-49-3 HCAPLUS

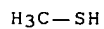
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT **74-93-1**, Methanethiol, reactions
(preparation of 3-(methylthio)propanal)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C323-50
ICS C07C323-51

CC 23-14 (**Aliphatic** Compounds)

IT **3268-49-3P**, 3-(Methylthio)propanal
(preparation of 3-(methylthio)propanal)

IT **74-93-1**, Methanethiol, reactions 107-02-8, Acrolein, reactions
(preparation of 3-(methylthio)propanal)

ACCESSION NUMBER: 1995:472534 HCAPLUS Full-text

DOCUMENT NUMBER: 122:289231

TITLE: Thermal generation of flavor compounds from thiamin and various amino acids

AUTHOR(S): Guentert, M.; Bertram, H. -J.; Hopp, R.; Silberzahn, W.; Sommer, H.; Werkhoff, P.

CORPORATE SOURCE: Haarmann & Reimer GmbH, Corporate Research, Holzminden, D-3450, Germany

SOURCE: Recent Dev. Flavor Fragrance Chem., Proc. Int. Haarmann Reimer Symp., 3rd (1993), 215-40. Editor(s): Hopp, Rudolf; Mori, Kenji. VCH: Weinheim, Germany. CODEN: 60ZGAH

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Aqueous solns. of pure thiamin hydrochloride as well as mixts. of thiamin hydrochloride with cysteine hydrochloride and of thiamin hydrochloride with methionine were heated in an autoclave. The resulting flavor compds. were obtained by the simultaneous distillation/extraction procedure according to Likens and Nickerson. The concs. were presep'd. by medium-pressure liquid chromatog. on silica gel using a pentane-diethyl ether gradient. The fractions were subsequently analyzed by capillary gas chromatog. (HRGC) and capillary gas chromatog.-mass spectrometry (HRGC/MS). Various unknown compds. were isolated by preparative capillary gas chromatog. in microgram quantities to elucidate their structures by IR and NMR spectroscopy and to check their olfactory properties. The spectroscopic data and sensory impressions are given. Most of the analyzed flavor compds. were synthesized. In particular, a series of new heterocyclic S-containing constituents with interesting taste properties was identified and confirmed by synthesis. Most of the degradation flavor compds. of pure thiamin contained sulfur and/or nitrogen. Many of these were heterocyclic constituents. The resp. mixts. with cysteine or methionine still led mainly to the formation of these thiamin degradation compds. but there was a distinctive addnl. effect caused by the main degradation products of the two amino acids which are hydrogen sulfide and mercaptoacetaldehyde (from cysteine) as well as methanethiol and methional (from methionine). The direct comparison between the flavor patterns of pure thiamin and of thiamin with cysteine and methionine resp., made it possible to study the influences of the different precursors on the resulting flavor compds. The explanation for the occurrence of the identified volatiles resulted in various proposals for the formation pathways of the thermal degradation reactions. To investigate the sensorially most relevant flavor compds. of the different mixts. aroma extract dilution analyses (AEDA) according to Grosch were made. The flavor dilution factors (FD) were calculated and are discussed. Addnl., the taste threshold values of various S-containing compds. in water were determined

IT 74-93-1, Methanethiol, biological studies
(formation and reaction of amino acid degradation products in food model)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

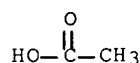
H₃C-SH

IT 64-19-7, Acetic acid, formation (nonpreparative)
3268-49-3, Methional

(thermal generation of flavor compds. from thiamin and various amino acids)

RN 64-19-7 HCAPLUS

CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



CC 17-2 (Food and Feed Chemistry)

IT 74-93-1, Methanethiol, biological studies 7783-06-4,

Hydrogen sulfide, biological studies

(formation and reaction of amino acid degradation products in food model)

IT 64-19-7, Acetic acid, formation (nonpreparative)

137-00-8, Sulfurol 600-14-6, 2,3-Pentanedione 624-92-0,

Dimethyl disulfide 656-53-1 2527-76-6, 2-Methyl-3-

thiophenethiol 3268-49-3, Methional 3658-80-8,

Dimethyltrisulfide 3760-25-6 4124-63-4, Mercaptoacetaldehyde

5616-51-3, 2-Methyl-1,3-dithiolane 5756-24-1,

Dimethyltetrasulfide 17042-24-9, 2-Mercapto-3-pentanone

19788-49-9, Ethyl 2-mercaptopropanoate 26486-13-5,

2-Methyl-4,5-dihydro-3-furanthiol 28588-74-1,

2-Methyl-3-furanthiol 28588-75-2, Bis-(2-methyl-3-

furyl)disulfide 31331-53-0, 1-(Methylthio)ethanethiol

34047-39-7, 4-(Methylthio)-2-butanone 40789-98-8,

3-Mercapto-2-butanone 65505-17-1, 2-Methyl-3-(methyldithio)furan

67633-97-0, 3-Mercapto-2-pentanone 85196-66-3 91265-97-3

(thermal generation of flavor compds. from thiamin and various amino acids)

L29 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:183935 HCAPLUS Full-text

DOCUMENT NUMBER: 122:9491

TITLE: Continuous process for preparation of
3-(methylthio)propanal from a gaseous acrolein
feed stream

INVENTOR(S): Hsu, Yung C.; Ruest, Dennis A.

PATENT ASSIGNEE(S): Novus International, Inc., USA

SOURCE: U.S., 16 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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ZA 9305850	A	19940525	ZA 1993-5850	1993 0811
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WO 9429254	A1	19941222	WO 1993-US8552	1993 0909
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RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9351268	A1	19950103	AU 1993-51268	1993 0909
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AU 673856	B2	19961128		
BR 9307864	A	19960123	BR 1993-7864	1993 0909
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EP 703890	A1	19960403	EP 1993-922171	1993 0909
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EP 703890	B1	19990407		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 09501145	T2	19970204	JP 1993-501709	1993 0909
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RU 2118314	C1	19980827	RU 1996-100238	1993 0909
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EP 889029	A2	19990107	EP 1998-114518	1993 0909
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EP 889029	A3	20020313		
R: BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE				
AT 178594	E	19990415	AT 1993-922171	1993 0909
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ES 2131120	T3	19990716	ES 1993-922171	1993 0909
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CN 1096779	A	19941228	CN 1993-118591	1993 1009

CN 1041414	B	19981230	<--	
US 5637766	A	19970610	US 1995-557699	1995 1113
US 5925794	A	19990720	<-- US 1996-668572	1996 0620
US 5744647	A	19980428	<-- US 1996-679701	1996 0711
US 6031138	A	20000229	<-- US 1998-102025	1998 0622
US 6320076	B1	20011120	<-- US 1999-470407	1999 1222
US 2002173677	A1	20021121	<-- US 2001-972748	2001 1005
US 6548701	B2	20030415	<-- US 1993-73763	A 1993 0608
PRIORITY APPLN. INFO.:			<-- EP 1993-922171	A3 1993 0909
			<-- WO 1993-US8552	W 1993 0909
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			<-- US 1995-557699	A2 1995 1113
			<-- US 1996-667099	B1 1996 0620
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1998

0622

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US 1999-470407

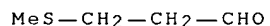
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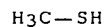
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- AB A process for the continuous preparation of 3-(methylthio)propanal. A liquid reaction medium is contacted with a gaseous acrolein feed stream in a gas/liquid contact zone. The reaction medium contains 3-(methylthio)propanal, Me mercaptan and a catalyst for the reaction between Me mercaptan and acrolein. The gaseous acrolein feed stream comprises acrolein vapor and non-condensable gas. Acrolein is transferred from the acrolein feed stream to the reaction medium and reacts with Me mercaptan in that medium to produce a liquid reaction product containing 3-(methylthio)propanal. The non-condensable gas is separated from the liquid reaction product. The reaction product is divided into a product fraction and a circulating fraction, and the circulating fraction is recycled to the gas/liquid contact zone.
- IT **3268-49-3P**, 3-(Methylthio)propanal
(continuous process for preparation of 3-(methylthio)propanal from a gaseous acrolein feed stream)
- RN 3268-49-3 HCAPLUS
- CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



- IT **74-93-1**, Methyl mercaptan, reactions
(continuous process for preparation of 3-(methylthio)propanal from a gaseous acrolein feed stream)
- RN 74-93-1 HCAPLUS
- CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



- IC ICM C07C323-50
ICS C07C323-51
- INCL 568041000
- CC 23-14 (**Aliphatic** Compounds)
Section cross-reference(s): 45
- IT **3268-49-3P**, 3-(Methylthio)propanal
(continuous process for preparation of 3-(methylthio)propanal from a gaseous acrolein feed stream)
- IT **74-93-1**, Methyl mercaptan, reactions
(continuous process for preparation of 3-(methylthio)propanal from a gaseous acrolein feed stream)

L29 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:161921 HCAPLUS Full-text

DOCUMENT NUMBER: 120:161921

TITLE: Microwave and thermally induced Maillard reactions

AUTHOR(S): Yaylayan, V. A.; Forage, N. G.; Mandeville, S.

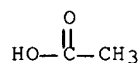
CORPORATE SOURCE: Dep. Food Sci. Agric. Chem., McGill Univ.,
Ate. Anne de Bellevue, QC, H9X 3V9, Can.
SOURCE: ACS Symposium Series (1994),
543(Thermally Generated Flavors), 449-56
CODEN: ACSMC8; ISSN: 0097-6156
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect of amino acid type on the generation of Maillard aromas under microwave irradiation in an open system was evaluated by mixing different combinations of amino acids with the same reducing sugars and characterizing the aromas produced as caramel, meaty, nutty, fragrant, vegetable and baked. The amino acids were divided into five categories: aliphatic, aromatic, basic, acidic and sulfur-containing. Certain trends emerged after anal. of the results that relate the presence of a specific amino acid category in the reaction mixture to a corresponding aroma note produced after microwave heating. The presence of amino acids with alkyl side chains was essential for the generation of caramel notes, sulfur-containing amino acids for meaty type notes and basic amino acids for nutty and baked notes. Selected formulations were also subjected to conventional heating and their sensory properties and chemical composition (by GC/MS anal.) were compared to those from microwave treated samples. No significant differences were observed between the two samples.

IT 64-19-7, Acetic acid, reactions 74-93-1,
Methanthiol, reactions 3268-49-3, 3-Methylthio propanal
(formation of, in Maillard reaction, heat and microwave
treatment in relation to)

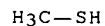
RN 64-19-7 HCAPLUS

CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



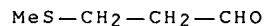
RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



CC 17-2 (Food and Feed Chemistry)

IT 64-18-6, Formic acid, reactions 64-19-7, Acetic acid,
reactions 67-47-0, HMF 74-93-1, Methanthiol, reactions
75-07-0, Acetaldehyde, reactions 78-84-2, 2-Methylpropanal
96-17-3, 2-Methylbutanal 98-00-0, 2-Furan methanol 98-01-1,

2-Furancarboxaldehyde, reactions 108-31-6, 2,5-Furandione, reactions 110-00-9, Furan 116-09-6, 1-Hydroxy-2-propanone 122-78-1, Benzene acetaldehyde 123-72-8, Butanal 142-08-5, 2-(1H)-Pyridinone 290-37-9, Pyrazine 497-23-4, 2-(5H)-Furanone 534-22-5, 2-Methylfuran 590-86-3, 3-Methylbutanal 616-43-3, 3-Methylpyrrole 620-02-0, 5-Methyl-2-furancarboxaldehyde 624-92-0, Dimethyl disulfide 1073-96-7 1192-62-7, 1-(2-Furanyl)ethanone **3268-49-3**, 3-Methylthio propanal 3658-77-3 3658-80-8, Dimethyl trisulfide 28564-83-2 153315-58-3

(formation of, in Maillard reaction, heat and microwave treatment in relation to)

L29 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1994:133858 HCAPLUS Full-text
 DOCUMENT NUMBER: 120:133858
 TITLE: Process for producing 2-hydroxy-4-methylthiobutanoic acid
 INVENTOR(S): Matsuoka, Kazuyuki
 PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan
 SOURCE: PCT Int. Appl., 21 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9323372	A1	19931125	WO 1993-JP659	1993 0520
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W: US RW: BE, DE, FR, GB JP 06049020	A2	19940222	JP 1993-143026	1993 0520
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JP 3219544 EP 601195	B2 A1	20011015 19940615	EP 1993-910360	1993 0520
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EP 601195 R: BE, DE, FR, GB CN 1084511	B1 A	19960828 19940330	CN 1993-107598	1993 0521
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CN 1036391 US 5386056	B A	19971112 19950131	US 1994-178315	1994 0112
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PRIORITY APPLN. INFO.:			JP 1992-155802	A 1992 0521
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OTHER SOURCE(S): CASREACT 120:133858

AB A process for producing 2-hydroxy-4-methylthiobutanoic acid (I) together with methanol comprises hydrating 2-hydroxy-4-methylthiobutyronitrile (II) into 2-hydroxy-4-methylthiobutanamide (III), reacting the amide with Me formate to yield Me 2-hydroxy-4-methylthiobutanoate (IV) and formamide, and hydrolyzing the Me ester. The discharge of a large amount of ammonium sulfate can be prevented, because no sulfuric acid is used as the reactant. The byproduct formamide and methanol are utilizable as the starting material of the reaction after converting them into HCN and Me formate, resp. Thus, addition of MeSH to acrolein in the presence of Cu(OAc)₂ and hydroquinone and addition of the resulting 3-methylthiopropionaldehyde with HCN in the presence of NaOH in MeOH gave II. Hydration of II in the presence of MnO₂ in aqueous acetone at 60° for 6 h to give III which was reacted with HCO₂Me in MeOH containing MeONa to give IV and the byproduct formamide. Hydrolysis of IV in the presence of Amberlyst 15 in H₂O at 95° gave I, while the byproduct MeOH was recovered. Formamide was fed into a stainless steel reactor packed with alumina at 500° to give HCN. MeOH was contacted with a catalyst prepared from Cu(NO₃)₂ and ammonium chromate in a stainless steel reactor to give Me formate.

IT 74-93-1, Methanethiol, reactions
(addition reaction of, with acrolein)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C—SH

IT 3268-49-3P, 3-Methylthiopropionaldehyde
(preparation and addition of, with hydrogen cyanide)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

IC ICM C07C323-52

CC 23-16 (**Aliphatic** Compounds)

IT 74-93-1, Methanethiol, reactions
(addition reaction of, with acrolein)

IT 3268-49-3P, 3-Methylthiopropionaldehyde
(preparation and addition of, with hydrogen cyanide)

L29 ANSWER 18 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:135528 HCAPLUS Full-text

DOCUMENT NUMBER: 116:135528

TITLE: Performance-oriented packaging standards;
changes to classification, hazard
communication, packaging and handling
requirements based on UN standards and agency
initiative

CORPORATE SOURCE: United States Dept. of Transportation,

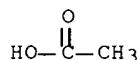
SOURCE: Washington, DC, 20590-0001, USA
Federal Register (1990), 55(246),
52402-729, 21 Dec 1990
CODEN: FEREAC; ISSN: 0097-6326
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The hazardous materials regulations under the Federal Hazardous Materials Transportation Act are revised based on the United Nations recommendations on the transport of dangerous goods. The regulations cover the classification of materials, packaging requirements, and package marking, labeling, and shipping documentation, as well as transportation modes and handling, and incident reporting. Performance-oriented stds. are adopted for packaging for bulk and nonbulk transportation, and SI units of measurement generally replace US customary units. Hazardous material descriptions and proper shipping names are tabulated together with hazard class, identification nos., packing group, label required, special provisions, packaging authorizations, quantity limitations, and vessel stowage requirements.

IT 64-19-7, Acetic acid, miscellaneous 74-93-1,
Methyl mercaptan, miscellaneous 107-02-8, 2-Propenal,
miscellaneous 3268-49-3
(packaging and transport of, stds. for)

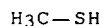
RN 64-19-7 HCAPLUS

CN Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



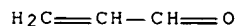
RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



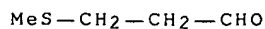
RN 107-02-8 HCAPLUS

CN 2-Propenal (9CI) (CA INDEX NAME)



RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



CC 59-6 (Air Pollution and Industrial Hygiene)

IT 50-00-0, Formaldehyde, miscellaneous 54-11-5, Nicotine
 54-11-5D, Nicotine, compds. 55-63-0, Nitroglycerin 55-68-5,
 Phenylmercuric nitrate 56-18-8, 3,3'-Iminodipropylamine
 56-23-5, miscellaneous 56-38-2, Parathion 57-06-7, Allyl
 isothiocyanate 57-14-7 57-24-9D, Strychnine, salts 60-00-4,
 EDTA, miscellaneous 60-24-2 60-29-7, Diethyl ether,
 miscellaneous 60-34-4, Methylhydrazine 60-57-1, Dieldrin
 62-38-4, Phenylmercuric acetate 62-53-3, Aniline, miscellaneous
 62-74-8, Sodium fluoroacetate 64-17-5, Ethanol, miscellaneous
 64-18-6, Formic acid, miscellaneous 64-18-6D, Formic acid,
 chloro derivs. **64-19-7**, Acetic acid, miscellaneous
 64-67-5, Diethyl sulfate 66-25-1, Hexaldehyde 67-56-1,
 Methanol, miscellaneous 67-63-0, Isopropanol, miscellaneous
 67-64-1, Acetone, miscellaneous 67-66-3, Chloroform,
 miscellaneous 68-11-1, Thioglycolic acid, miscellaneous
 68-12-2, N,N-Dimethylformamide, miscellaneous 70-11-1, Phenacyl
 bromide 70-30-4, Hexachlorophene 71-23-8, n-Propanol,
 miscellaneous 71-41-0, 1-Pentanol, miscellaneous 71-43-2,
 Benzene, miscellaneous 71-55-6, 1,1,1-Trichloroethane 74-82-8,
 Methane, miscellaneous 74-83-9, miscellaneous 74-84-0, Ethane,
 miscellaneous 74-85-1, Ethylene, miscellaneous 74-86-2,
 Acetylene, miscellaneous 74-87-3, Methyl chloride, miscellaneous
 74-88-4, Methyl iodide, miscellaneous 74-89-5, Methylamine,
 miscellaneous 74-90-8, Hydrogen cyanide, miscellaneous
74-93-1, Methyl mercaptan, miscellaneous 74-95-3,
 Dibromomethane 74-96-4, Ethyl bromide 74-97-5,
 Bromochloromethane 74-98-6, Propane, miscellaneous 75-00-3,
 Ethyl chloride 75-01-4, miscellaneous 75-02-5, Vinyl fluoride
 75-04-7, Ethylamine, miscellaneous 75-05-8, Methyl cyanide,
 miscellaneous 75-07-0, Acetaldehyde, miscellaneous 75-08-1,
 Ethyl mercaptan 75-09-2, Dichloromethane, miscellaneous
 75-15-0, Carbon disulfide, miscellaneous 75-16-1, Methyl
 magnesium bromide 75-18-3, Dimethyl sulfide 75-19-4,
 Cyclopropane 75-20-7, Calcium carbide 75-21-8, Ethylene oxide,
 miscellaneous 75-21-8 75-25-2, Bromoform 75-26-3,
 2-Bromopropane 75-28-5, Isobutane 75-28-5D, Isobutane, mixts.
 75-29-6, 2-Chloropropane 75-31-0, Isopropylamine, miscellaneous
 75-33-2, Isopropyl mercaptan 75-34-3, 1,1-Dichloroethane
 75-35-4, miscellaneous 75-36-5, Acetyl chloride 75-38-7,
 1,1-Difluoroethylene 75-39-8, Acetaldehyde ammonia 75-43-4,
 Dichloromonofluoromethane 75-44-5, Phosgene 75-45-6,
 Chlorodifluoromethane 75-46-7, Trifluoromethane 75-50-3,
 Trimethylamine, miscellaneous 75-52-5, Nitromethane,
 miscellaneous 75-54-7, Methylchlorosilane 75-55-8,
 Propylenimine 75-56-9, Propylene oxide, miscellaneous 75-59-2,
 Tetramethylammonium hydroxide 75-60-5, Cacodylic acid 75-61-6,
 Dibromodifluoromethane 75-63-8 75-71-8,
 Dichlorodifluoromethane 75-72-9, Chlorotrifluoromethane
 75-73-0, Tetrafluoromethane 75-76-3, Tetramethylsilane
 75-77-4, Trimethylchlorosilane, miscellaneous 75-78-5,
 Dimethyldichlorosilane 75-79-6, Methyltrichlorosilane 75-83-2
 75-86-5, Acetone cyanohydrin 75-87-6, Chloral 75-91-2,
 tert-Butyl hydroperoxide 75-94-5, Vinyltrichlorosilane
 76-01-7, Pentachloroethane 76-02-8, Trichloroacetyl chloride
 76-03-9, properties 76-05-1, Trifluoroacetic acid, miscellaneous
 76-06-2, Chloropicrin 76-06-2D, Chloropicrin, mixts. 76-15-3
 76-16-4, Hexafluoroethane 76-19-7, Octafluoropropane 76-22-2,
 Camphor 77-47-4, Hexachlorocyclopentadiene 77-73-6 77-78-1,
 Dimethyl sulfate 78-00-2, Tetraethyl lead 78-10-4, Tetraethyl
 silicate 78-62-6, Dimethyldiethoxysilane 78-67-1,

Azodiisobutyronitrile 78-76-2, 2-Bromobutane 78-78-4,
 Isopentane 78-79-5, Isoprene, miscellaneous 78-81-9,
 Isobutylamine 78-82-0, Isobutyronitrile 78-83-1, Isobutanol,
 miscellaneous 78-84-2, Isobutyraldehyde 78-85-3,
 Methacrylaldehyde 78-87-5, Propylene dichloride 78-89-7,
 Propylene chlorohydrin 78-90-0, 1,2-Propylenediamine 78-93-3,
 2-Butanone, miscellaneous 78-94-4, Methyl vinyl ketone,
 miscellaneous 78-95-5, Monochloroacetone 79-01-6,
 Trichloroethylene, miscellaneous 79-03-8, Propionyl chloride
 79-04-9, Chloroacetyl chloride 79-06-1, Acrylamide,
 miscellaneous 79-08-3, Bromoacetic acid 79-09-4, Propionic
 acid, miscellaneous 79-10-7, 2-Propenoic acid, miscellaneous
 79-11-8, Chloroacetic acid, miscellaneous 79-20-9, Methyl
 acetate 79-21-0, Peroxyacetic acid 79-22-1 79-24-3,
 Nitroethane 79-29-8, 2,3-Dimethylbutane 79-30-1, Isobutyryl
 chloride 79-31-2, Isobutyric acid 79-36-7, Dichloroacetyl
 chloride 79-38-9 79-41-4, miscellaneous 79-42-5 79-43-6,
 Dichloroacetic acid, miscellaneous 79-44-7, Dimethylcarbamoyl
 chloride 80-10-4, Diphenyldichlorosilane 80-15-9, Cumene
 hydroperoxide 80-17-1, Benzene sulfohydrazide 80-47-7,
 p-Menthane hydroperoxide 80-51-3, Diphenyloxide-4,4'-
 disulfohydrazide 80-56-8, α -Pinene 80-62-6 81-15-2
 82-71-3 85-44-9, 1,3-Isobenzofurandione 86-50-0, Azinphos
 methyl 87-68-3, Hexachlorobutadiene 87-90-1 88-17-5,
 2-Trifluoromethylaniline 88-72-2, o-Nitrotoluene 88-73-3,
 o-Chloronitrobenzene 88-74-4, o-Nitroaniline 88-75-5,
 o-Nitrophenol 88-89-1 89-58-7, p-Nitroxyline 91-17-8,
 Decahydronaphthalene 91-20-3, Naphthalene, miscellaneous
 91-20-3D, Naphthalene, diozonide derivs. 91-22-5, Quinoline,
 miscellaneous 91-59-8, β -Naphthylamine 91-66-7,
 N,N-Diethylaniline 92-52-4D, Biphenyl, chloro derivs.
 92-52-4D, Biphenyl, halo derivs. 92-59-1, N-Ethyl-N-
 benzytaniline 92-87-5, Benzidine 93-58-3, Methyl benzoate
 94-17-7, p-Chlorobenzoyl peroxide 94-36-0, Benzoyl peroxide,
 miscellaneous 95-48-7, miscellaneous 95-50-1,
 o-Dichlorobenzene 95-54-5, o-Phenylenediamine, miscellaneous
 95-55-6, o-Aminophenol 95-80-7 95-85-2, 2-Amino-4-chlorophenol
 96-12-8, Dibromochloropropane 96-22-0, Diethyl ketone 96-23-1
 96-24-2, Glycerol α -monochlorohydrin 96-32-2, Methyl
 bromoacetate 96-33-3 96-34-4, Methyl chloroacetate 96-37-7,
 Methyl cyclopentane 96-41-3, Cyclopentanol 97-62-1, Ethyl
 isobutyrate 97-63-2 97-64-3, Ethyl lactate 97-72-3,
 Isobutyric anhydride 97-85-8, Isobutyl isobutyrate 97-86-9
 97-88-1 97-95-0 97-96-1, 2-Ethylbutyraldehyde 98-00-0,
 Furfuryl alcohol 98-01-1, Furfural, miscellaneous 98-07-7,
 Benzotrichloride 98-08-8, Benzotrifluoride 98-09-9, Benzene
 sulfonyl chloride 98-12-4, Cyclohexyltrichlorosilane 98-13-5,
 Phenyltrichlorosilane 98-16-8, 3-Trifluoromethylaniline
 98-82-8, Isopropylbenzene 98-83-9, miscellaneous 98-85-1,
 α -Methylbenzyl alcohol 98-87-3, Benzylidene chloride
 98-88-4, Benzoyl chloride 98-94-2 98-95-3, Nitrobenzene,
 miscellaneous 99-08-1, m-Nitrotoluene 99-09-2, m-Nitroaniline
 99-35-4, Trinitrobenzene 99-99-0, p-Nitrotoluene 100-00-5
 100-01-6, p-Nitroaniline, miscellaneous 100-02-7, p-Nitrophenol,
 miscellaneous 100-17-4 100-34-5, Benzene diazonium chloride
 100-36-7, N,N-Diethylethylenediamine 100-37-8,
 Diethylaminoethanol 100-39-0, Benzyl bromide 100-41-4,
 Ethylbenzene, miscellaneous
 (packaging and transport of, stds. for)

IT 100-42-5, miscellaneous 100-44-7, Benzyl chloride, miscellaneous
 100-47-0, Benzonitrile, miscellaneous 100-50-5,
 1,2,3,6-Tetrahydrobenzaldehyde 100-57-2, Phenylmercuric
 hydroxide 100-61-8, N-Methylaniline, miscellaneous 100-63-0,
 Phenylhydrazine 100-66-3, Anisole, miscellaneous 100-73-2,
 Acrolein dimer 101-25-7, N,N'-Dinitrosopentamethylenetetramine
 101-68-8 101-77-9, 4,4'-Diaminodiphenyl methane 101-83-7,
 Dicyclohexylamine 102-69-2, Tripropylamine 102-70-5,
 Triallylamine 102-81-8, Dibutylaminoethanol 102-82-9,
 Tributylamine 103-65-1, n-Propylbenzene 103-69-5,
 N-Ethylaniline 103-71-9, Phenylisocyanate, miscellaneous
 103-80-0, Phenylacetyl chloride 103-83-3, Benzyldimethylamine
 104-15-4, Toluene sulfonic acid, miscellaneous 104-51-8,
 Butylbenzene 104-75-6, 2-Ethylhexylamine 104-78-9 104-90-5,
 2-Methyl-5-ethylpyridine 105-36-2 105-37-3, Ethyl propionate
 105-39-5, Ethyl chloroacetate 105-48-6, Isopropyl chloroacetate
 105-54-4, Ethyl butyrate 105-56-6, Ethyl cyanoacetate
 105-57-7, Acetal 105-58-8, Diethyl carbonate 105-64-6,
 Isopropyl peroxydicarbonate 105-74-8, Lauroyl peroxide
 106-31-0, Butyric anhydride 106-44-5, p-Cresol, miscellaneous
 106-46-7, p-Dichlorobenzene 106-50-3, p-Phenylenediamine,
 miscellaneous 106-51-4, 2,5-Cyclohexadiene-1,4-dione,
 miscellaneous 106-63-8, Isobutyl acrylate 106-68-3, Ethyl amyl
 ketone 106-88-7, 1,2-Butylene oxide 106-89-8, miscellaneous
 106-92-3, Allyl glycidyl ether 106-93-4, Ethylene dibromide
 106-95-6, Allyl bromide, miscellaneous 106-96-7, 3-Bromopropyne
 106-97-8, Butane, miscellaneous 106-97-8D, Butane, mixts.
 106-99-0, 1,3-Butadiene, miscellaneous 107-00-6, Ethylacetylene
107-02-8, 2-Propenal, miscellaneous 107-05-1, Allyl
 chloride 107-06-2, Ethylene dichloride, miscellaneous
 107-07-3, Ethylene chlorohydrin, miscellaneous 107-10-8,
 Propylamine, miscellaneous 107-11-9, Allylamine 107-12-0,
 Propionitrile 107-13-1, Acrylonitrile, miscellaneous 107-14-2,
 Chloroacetonitrile 107-15-3, Ethylenediamine, miscellaneous
 107-18-6, Allyl alcohol, miscellaneous 107-19-7, Propargyl
 alcohol 107-20-0, Chloroacetaldehyde 107-25-5, Vinylmethyl
 ether 107-29-9, Acetaldehyde oxime 107-30-2,
 Methylchloromethyl ether 107-31-3, Methyl formate 107-37-9,
 Allyltrichlorosilane 107-49-3, Tetraethyl pyrophosphate
 107-70-0 107-71-1, tert-Butyl peroxyacetate 107-72-2,
 Amyltrichlorosilane 107-81-3, 2-Bromopentane 107-82-4,
 1-Bromo-3-methylbutane 107-87-9, Methyl propyl ketone
 107-89-1, Aldol 107-92-6, Butyric acid, miscellaneous
 108-01-0, Dimethylethanolamine 108-05-4, Acetic acid ethenyl
 ester, miscellaneous 108-09-8, 1,3-Dimethylbutylamine
 108-10-1, Methyl isobutyl ketone 108-11-2, Methyl isobutyl
 carbinol 108-18-9, Diisopropylamine 108-20-3, Diisopropyl
 ether 108-21-4, Isopropyl acetate 108-22-5, Isopropenyl
 acetate 108-23-6, Isopropyl chloroformate 108-24-7, Acetic
 anhydride 108-31-6, 2,5-Furandione, miscellaneous 108-39-4,
 miscellaneous 108-45-2, m-Phenylenediamine, miscellaneous
 108-46-3, Resorcinol, miscellaneous 108-67-8, miscellaneous
 108-77-0 108-83-8, Diisobutyl ketone 108-84-9 108-86-1,
 Benzene, bromo-, miscellaneous 108-87-2, Methyl cyclohexane
 108-88-3, Toluene, miscellaneous 108-90-7, Chlorobenzene,
 miscellaneous 108-91-8, Cyclohexylamine, miscellaneous
 108-94-1, Cyclohexanone, miscellaneous 108-95-2, Phenol,
 miscellaneous 108-98-5, Phenyl mercaptan, miscellaneous
 109-02-4 109-09-1, 2-Chloropyridine 109-13-7, tert-Butyl
 peroxyisobutyrate 109-52-4, Valeric acid, miscellaneous

109-53-5, Vinyl isobutyl ether 109-60-4, n-Propyl acetate
 109-61-5, n-Propyl chloroformate 109-63-7, Boron trifluoride
 diethyl etherate 109-65-9, n-Butyl bromide 109-66-0, Pentane,
 miscellaneous 109-70-6, 1-Chloro-3-bromopropane 109-73-9,
 n-Butylamine, miscellaneous 109-74-0, Butyronitrile 109-77-3,
 Malononitrile 109-79-5, Butyl mercaptan 109-86-4, Ethylene
 glycol monomethyl ether 109-87-5, Methylal 109-89-7,
 Diethylamine, miscellaneous 109-90-0, Ethyl isocyanate
 109-92-2, Vinyl ethyl ether 109-93-3, Divinyl ether 109-94-4,
 Ethyl formate 109-95-5, Ethyl nitrite 109-99-9,
 Tetrahydrofuran, miscellaneous 110-00-9, Furan 110-01-0,
 Tetrahydrothiophene 110-02-1, Thiophene 110-12-3,
 5-Methylhexan-2-one 110-16-7, Maleic acid, miscellaneous
 110-18-9 110-19-0 110-22-5, Diacetyl peroxide 110-43-0, Amyl
 methyl ketone 110-49-6 110-54-3, Hexane, miscellaneous
 110-58-7, Amylamine 110-62-3, Valeraldehyde 110-66-7, Amyl
 mercaptan 110-68-9, N-Methylbutylamine 110-69-0, Butyraldoxime
 110-71-4, 1,2-Dimethoxyethane 110-74-7, Propyl formate
 110-78-1, n-Propyl isocyanate 110-80-5, Ethylene glycol
 monoethyl ether 110-82-7, Cyclohexane, miscellaneous 110-83-8,
 Cyclohexene, miscellaneous 110-85-0, Piperazine, miscellaneous
 110-86-1, Pyridine, miscellaneous 110-87-2 110-89-4,
 Piperidine, miscellaneous 110-91-8, Morpholine, miscellaneous
 110-96-3, Diisobutylamine 111-15-9, Ethylene glycol monoethyl
 ether acetate 111-34-2, Butylvinyl ether 111-36-4, n-Butyl
 isocyanate 111-40-0 111-43-3, Dipropyl ether 111-49-9,
 Hexamethylenimine 111-65-9, Octane, miscellaneous 111-69-3,
 Adiponitrile 111-71-7, n-Heptaldehyde 111-76-2, Ethylene
 glycol monobutyl ether 111-92-2, Di-n-butylamine 112-04-9
 112-24-3, Triethylenetetramine 112-57-2 115-07-1, Propylene,
 miscellaneous 115-10-6, Dimethyl ether 115-11-7, Isobutylene,
 miscellaneous 115-21-9, Ethyltrichlorosilane 115-25-3,
 Octafluorocyclobutane 116-14-3, Tetrafluoroethylene,
 miscellaneous 116-15-4, Hexafluoropropylene 116-16-5,
 Hexachloroacetone 116-54-1, Methyl dichloroacetate 118-74-1,
 Hexachlorobenzene 118-96-7, Trinitrotoluene 120-92-3,
 Cyclopentanone 121-43-7, Trimethyl borate 121-44-8,
 Triethylamine, miscellaneous 121-45-9, Trimethyl phosphite
 121-46-0, 2,5-Norbornadiene 121-69-7, N,N-Dimethylaniline,
 miscellaneous 121-73-3 121-82-4, Cyclotrimethylenetrinitramine
 122-51-0, Ethyl orthoformate 122-52-1, Triethyl phosphite
 123-00-2, 4-Morpholinepropanamine 123-15-9 123-19-3,
 Dipropylketone 123-20-6, Vinyl butyrate 123-23-9, Succinic
 acid peroxide 123-30-8, p-Aminophenol 123-31-9, Hydroquinone,
 miscellaneous 123-38-6, Propionaldehyde, miscellaneous
 123-42-2, Diacetone alcohol 123-54-6, 2,4-Pentanedione,
 miscellaneous 123-62-6, Propionic anhydride 123-63-7,
 Paraldehyde 123-72-8, Butyraldehyde 123-75-1, Pyrrolidine,
 miscellaneous 123-86-4, Butyl acetate 123-91-1, Dioxane,
 miscellaneous 124-02-7, Diallylamine 124-09-4,
 Hexamethylenediamine, miscellaneous 124-13-0, Octyl aldehyde
 124-18-5, n-Decane 124-38-9, Carbon dioxide, miscellaneous
 124-40-3, Dimethylamine, miscellaneous 124-41-4, Sodium
 methylate 124-43-6 124-47-0, Urea nitrate 124-65-2, Sodium
 cacodylate 126-98-7, Methacrylonitrile 126-99-8, Chloroprene
 127-18-4, Tetrachloroethylene, miscellaneous 127-85-5, Sodium
 arsanilate 129-79-3 131-52-2, Sodium pentachlorophenate
 131-73-7, Hexanitrodiphenylamine 131-74-8, Ammonium picrate
 133-14-2 133-55-1, N,N'-Dinitroso-N,N'-dimethyl terephthalamide
 134-32-7, α -Naphthylamine 138-86-3, Dipentene 138-89-6

139-02-6, Sodium phenolate 140-29-4, Phenylacetonitrile
 140-31-8, 1-Piperazineethanamine 140-80-7 140-88-5 141-32-2
 (packaging and transport of, stds. for)
 IT 1303-33-9D, Arsenic sulfide, mixture with chlorates 1304-28-5,
 Barium oxide, miscellaneous 1304-29-6, Barium peroxide
 1305-78-8, Calcium oxide, miscellaneous 1305-79-9, Calcium
 peroxide 1305-99-3, Calcium phosphide 1309-60-0, Lead dioxide
 1310-58-3, Potassium hydroxide, miscellaneous 1310-65-2, Lithium
 hydroxide 1310-73-2, Sodium hydroxide, miscellaneous
 1310-82-3, Rubidium hydroxide 1312-73-8, Potassium sulfide
 1313-60-6, Sodium peroxide 1313-82-2, Sodium sulfide,
 miscellaneous 1314-18-7, Strontium peroxide 1314-22-3, Zinc
 peroxide 1314-24-5, Phosphorus trioxide 1314-34-7, Vanadium
 trioxide 1314-56-3, Phosphorus pentoxide, miscellaneous
 1314-62-1, Vanadium pentoxide, miscellaneous 1314-80-3,
 Phosphorus sulfide (P2S5) 1314-84-7, Zinc phosphide 1314-85-8,
 Phosphorus sesquisulfide 1319-77-3, Cresylic acid 1320-37-2,
 Dichlorotetrafluoroethane 1321-10-4, Chlorocresol 1321-31-9,
 Phenetidine 1327-53-3, Arsenic trioxide 1330-20-7, Xylene,
 miscellaneous 1330-45-6, Chlorotrifluoroethane 1330-78-5,
 Tricresyl phosphate 1331-22-2, Methyl cyclohexanone 1332-12-3,
 Fulminating gold 1332-37-2, Iron oxide, properties 1333-39-7,
 Phenolsulfonic acid 1333-41-1, Picoline 1333-74-0, Hydrogen,
 miscellaneous 1333-82-0, Chromium trioxide 1333-83-1, Sodium
 hydrogen fluoride 1335-26-8, Magnesium peroxide 1335-31-5,
 Mercury oxycyanide 1335-85-9, Dinitro-o-cresol 1336-21-6,
 Ammonium hydroxide 1337-81-1 1338-23-4, Methyl ethyl ketone
 peroxide 1341-24-8, Chloroacetophenone 1341-49-7, Ammonium
 hydrogen fluoride 1344-40-7, Lead phosphite, dibasic
 1344-67-8, Copper chloride 1498-40-4, Ethyl phosphonous
 dichloride 1498-51-7, Ethyl phosphorodichloridate 1569-69-3,
 Cyclohexyl mercaptan 1609-86-5, tert-Butyl isocyanate
 1623-15-0 1623-24-1, Isopropyl acid phosphate 1634-04-4,
 Methyl-tert-butyl ether 1693-71-6, Triallyl borate 1705-60-8,
 2,2-Di(4,4-di-tert-butylperoxycyclohexyl)propane 1712-64-7,
 Isopropyl nitrate 1719-53-5, Diethyldichlorosilane 1737-93-5,
 3,5-Dichloro-2,4,6-trifluoropyridine 1789-58-8,
 Ethyldichlorosilane 1795-48-8, Isopropyl isocyanate 1838-59-1,
 Allyl formate 1873-29-6, Isobutyl isocyanate 1885-14-9,
 Phenylchloroformate 1947-27-9, Arsenic trichloride 2050-92-2,
 Di-n-amylamine 2094-98-6, 1,1'-Azodi(hexahydrobenzonitrile)
 2144-45-8, Dibenzyl peroxydicarbonate 2155-71-7 2167-23-9,
 2,2-Di(tert-butylperoxy)butane 2217-06-3, Dipicryl sulfide
 2243-94-9, 1,3,5-Trinitronaphthalene 2244-21-5, Potassium
 dichloroisocyanurate 2294-47-5, p-Diazidobenzene 2312-76-7
 2338-12-7, 5-Nitrobenzotriazole 2487-90-3, Trimethoxysilane
 2508-19-2, Trinitrobenzenesulfonic acid 2524-03-0, Dimethyl
 chlorothiophosphate 2524-04-1, Diethylthiophosphoryl chloride
 2549-51-1, Vinyl chloroacetate 2551-62-4, Sulfur hexafluoride
 2567-83-1, Tetraethylammonium perchlorate 2657-00-3, Sodium
 2-diazo-1-naphthol-5-sulfonate 2691-41-0,
 Cyclotetramethylenetetranitramine 2696-92-6, Nitrosyl chloride
 2699-79-8, Sulfuryl fluoride 2782-57-2, Dichloroisocyanuric acid
 2782-57-2D, Dichloroisocyanuric acid, salts 2820-51-1, Nicotine
 hydrochloride 2825-15-2 2855-13-2, Isophoronediamine
 2867-47-2, Dimethylaminoethyl methacrylate 2893-78-9, Sodium
 dichloroisocyanurate 2937-50-0, Allyl chloroformate 2941-64-2,
 Ethyl chlorothioformate 2980-64-5 3025-88-5,
 2,5-Dimethyl-2,5-dihydroperoxy hexane 3031-74-1, Ethyl
 hydroperoxide 3032-55-1 3054-95-3, 3,3-Diethoxypropene

3087-37-4, Tetrapropylorthotitanate 3129-90-6, Isothiocyanic acid 3129-91-7, Dicyclohexylammonium nitrite 3132-64-7, Epibromohydrin 3165-93-3, 4-Chloro-o-toluidine hydrochloride 3173-53-3, Cyclohexyl isocyanate 3179-56-4, Acetyl cyclohexanesulfonyl peroxide 3188-13-4, Chloromethyl ethyl ether 3248-28-0, Dipropionyl peroxide 3268-49-3 3275-73-8, Nicotine tartrate 3282-30-2, Trimethylacetyl chloride 3497-00-5, Phenyl phosphorus thiodichloride 3689-24-5 3724-65-0, Crotonic acid 3811-04-9, Potassium chlorate 3926-62-3, Sodium chloroacetate 3982-91-0, Thiophosphoryl chloride 4016-11-9, 1,2-Epoxy-3-ethoxypropane 4098-71-9 4109-96-0, Dichlorosilane 4170-30-3, Crotonaldehyde 4300-97-4 4316-42-1, N-n-Butylimidazole 4419-11-8, 2,2'-Azodi(2,4-dimethylvaleronitrile) 4421-50-5 4435-53-4, Butoxyl 4452-58-8, Sodium percarbonate 4472-06-4, Carbonazidodithioic acid 4484-72-4, Dodecyltrichlorosilane 4528-34-1 4547-70-0 4591-46-2 4682-03-5, Diazodinitrophenol 4795-29-3, Tetrahydrofurfurylamine 4904-61-4, 1,5,9-Cyclododecatriene 5283-66-9, Octyltrichlorosilane 5283-67-0, Nonyltrichlorosilane 5329-14-6, Sulfamic acid 5419-55-6, Triisopropyl borate 5610-59-3, Silver fulminate 5637-83-2, Cyanuric triazide 5653-21-4 5894-60-0, Hexadecyltrichlorosilane 5970-32-1, Mercury salicylate 6023-29-6 6275-02-1 6423-43-4 6427-21-0, Methoxymethyl isocyanate 6484-52-2, Nitric acid ammonium salt, properties 6484-52-2D, Ammonium nitrate, mixts. with fuel oils 6505-86-8, Nicotine sulfate 6659-60-5, 1,2,4-Butanetriol trinitrate 6842-15-5, Propylene tetramer 6867-30-7, Lithium acetylide ethylenediamine complex 7304-92-9 7332-16-3, Inositol hexanitate 7429-90-5, Aluminum, miscellaneous 7429-90-5D, Aluminum, alkyl derivs. 7439-90-9, Krypton, miscellaneous 7439-92-1D, Lead, compds. 7439-93-2, Lithium, miscellaneous 7439-93-2D, Lithium, alkyl derivs. 7439-95-4, Magnesium, miscellaneous 7439-95-4D, Magnesium, alkyl derivs. 7439-97-6, Mercury, miscellaneous 7439-97-6D, Mercury, compds. 7440-01-9, Neon, miscellaneous 7440-09-7, Potassium, miscellaneous 7440-17-7, Rubidium, miscellaneous 7440-21-3, Silicon, miscellaneous 7440-23-5, Sodium, miscellaneous 7440-28-0D, Thallium, compds. 7440-29-1, Thorium, miscellaneous 7440-31-5D, Tin, organic compds. 7440-32-6, Titanium, properties 7440-36-0, Antimony, miscellaneous 7440-36-0D, Antimony, inorg. and organic compds. 7440-37-1, Argon, miscellaneous 7440-38-2, Arsenic, miscellaneous 7440-39-3, Barium, miscellaneous 7440-39-3D, Barium, alloys 7440-39-3D, Barium, compds. 7440-41-7, Beryllium, miscellaneous 7440-41-7D, Beryllium, compds. 7440-43-9D, Cadmium, compds. 7440-44-0, Carbon, miscellaneous 7440-45-1, Cerium, miscellaneous 7440-46-2, Cesium, miscellaneous 7440-55-3, Gallium, miscellaneous 7440-58-6, Hafnium, miscellaneous 7440-59-7, Helium, miscellaneous 7440-61-1, Uranium, miscellaneous 7440-63-3, Xenon, miscellaneous 7440-66-6, Zinc, miscellaneous 7440-67-7, Zirconium, miscellaneous 7440-70-2, Calcium, miscellaneous 7440-70-2D, Calcium, alloys 7446-09-5, Sulfur dioxide, miscellaneous 7446-11-9, Sulfur trioxide, miscellaneous 7446-14-2, Lead sulfate 7446-18-6, Thallium sulfate 7446-70-0, Aluminum chloride (AlCl₃), miscellaneous 7487-94-7, Mercuric chloride, miscellaneous 7488-56-4, Selenium disulfide 7521-80-4, Butyltrichlorosilane 7550-45-0, Titanium tetrachloride, miscellaneous 7570-26-5, 1,2-Dinitroethane 7572-29-4, Dichloroacetylene 7578-36-1 7580-67-8, Lithium hydride 7601-89-0, Sodium perchlorate 7601-90-3, Perchloric

acid, miscellaneous 7616-94-6, Perchloryl fluoride 7631-89-2,
 Sodium arsenate 7631-99-4, Sodium nitrate, miscellaneous
 7632-00-0, Sodium nitrite 7632-51-1, Vanadium tetrachloride
 7637-07-2, Boron trifluoride, miscellaneous 7645-25-2, Lead
 arsenate 7646-69-7, Sodium hydride 7646-78-8, Stannic
 chloride, miscellaneous 7646-85-7, Zinc chloride, miscellaneous
 7646-93-7, Potassium hydrogen sulfate 7647-01-0, Hydrogen
 chloride, miscellaneous 7647-18-9, Antimony pentachloride
 7647-19-0, Phosphorus pentafluoride 7664-38-2, Phosphoric acid,
 miscellaneous 7664-38-2D, Phosphoric acid, esters 7664-39-3,
 Hydrogen fluoride, miscellaneous 7664-41-7, Ammonia,
 miscellaneous 7664-93-9, Sulfuric acid, miscellaneous
 7681-38-1, Sodium hydrogen sulfate 7681-49-4, Sodium fluoride,
 miscellaneous 7681-52-9, Sodium hypochlorite 7697-37-2, Nitric
 acid, miscellaneous 7704-34-9, Sulfur, miscellaneous
 (packaging and transport of, stds. for)

L29 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:630786 HCAPLUS Full-text

DOCUMENT NUMBER: 113:230786

TITLE: Photochemical preparation of
 3-(organothio)aldehydes from a mercaptan and
 α,β -unsaturated aliphatic aldehydes

INVENTOR(S): Sandler, Stanley R.

PATENT ASSIGNEE(S): Pennwalt Corp., USA

SOURCE: U.S., 3 pp.
 CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 4944853	A	19900731	US 1989-405784	1989 0911
IN 173789	A	19940716	IN 1990-CA292	1990 0409
JP 03184952	A2	19910812	JP 1990-94184	1990 0411
EP 417386	A1	19910320	EP 1990-107565	1990 0420
AU 9053784	A1	19910411	AU 1990-53784	1990 0423
AU 631202	B2	19921119		
BR 9001870	A	19911112	BR 1990-1870	1990 0423

PRIORITY APPLN. INFO.:

<--
US 1989-405784

A
1989
0911

<--

OTHER SOURCE(S): CASREACT 113:230786; MARPAT 113:230786
AB 3-(Organothio)aldehydes $R_1CH(SR_2)CH_2CHO$ (I; $R_1 = H$, C1-7 alkyl; $R_2 = C_1-12$ alkyl, C5-6 cycloalkyl, C6-12 aryl or alkaryl), useful as intermediates for the preparation of pesticides and antioxidants and as odorant or flavoring agents, are prepared by reaction of a mercaptan with substantially equimolar amount of α, β -unsatd. aliphatic aldehyde at .apprx.2°-60° in the absence of O-containing gas. Thus, a solution of 3.0 mol EtSH and 3.0 mol crotonaldehyde was cooled to 2-20° and was photolyzed in a 500 mL borosilicate reactor under the irradiation with a 450 W Hanovia high-pressure Hg lamp, while a slow stream of N was passed into the reactor. I ($R_1 = Me$, $R_2 = Et$) was obtained in 55.2% yield.
IT 74-93-1, Methyl mercaptan, reactions
(photochem. addition of, with acrolein)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H_3C-SH

IT 3268-49-3P, 3-(Methylthio)propanal
(preparation of, photochem. addition in)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

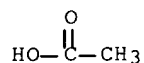
$MeS-CH_2-CH_2-CHO$

IC ICM B01J019-08
INCL 204157760
CC 23-14 (Aliphatic Compounds)
Section cross-reference(s): 5, 62
IT 74-93-1, Methyl mercaptan, reactions
(photochem. addition of, with acrolein)
IT 3268-49-3P, 3-(Methylthio)propanal 27205-24-9P,
3-(Ethylthio)butanal
(preparation of, photochem. addition in)

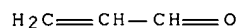
L29 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1985:505316 HCAPLUS Full-text
DOCUMENT NUMBER: 103:105316
TITLE: Methionine hydroxy analog or its derivative
and esters and 1-acyloxy-3-
hydrocarbylthiopropenes and products resulting
from their synthesis
INVENTOR(S): Burrington, James David; Cesa, Mark Clark
PATENT ASSIGNEE(S): Standard Oil Co., USA
SOURCE: Eur. Pat. Appl., 30 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

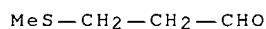
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 133796	A1	19850306	EP 1984-305228	1984 0801
<--				
EP 133796	B1	19870304		
R: BE, CH, DE, FR, GB, IT, LI, NL				
US 4782173	A	19881101	US 1983-520042	1983 0803
<--				
CA 1251463	A1	19890321	CA 1984-460202	1984 0802
<--				
JP 60100553	A2	19850604	JP 1984-163748	1984 0803
<--				
BR 8403914	A	19850709	BR 1984-3914	1984 0803
<--				
CA 1275111	A2	19901009	CA 1988-559288	1988 0218
<--				
PRIORITY APPLN. INFO.:			US 1983-520042	A 1983 0803
<--				
			CA 1984-460202	A3 1984 0802
<--				
AB	Methionine hydroxy analog or derivs. RSCH ₂ CH ₂ CH(OH)CO ₂ H (I, R = C ₁ -30 hydrocarbyl) were prepared by treating RSCH ₂ CH ₂ CHO with R ₁ COX (R ₁ = H, C ₁ -30 hydrocarbyl; X = R ₁ CO ₂ , F, Cl, Br, etc.), treating the resulting RSCH ₂ CH:CHO ₂ CR ₁ with CO and R ₂ YH (R ₂ = H, C ₁ -30 hydrocarbyl, Y = O; R ₂ = C ₁ -30 hydrocarbyl, Y = S), and hydrolyzing the resulting RSCH ₂ CH ₂ CH(O ₂ CR ₁)CO ₂ YR ₂ . Thus, MeSCH ₂ CH ₂ CHO was treated with Ac ₂ O in the presence of KOAc at 145° for 3 h to give MeSCH ₂ CH:CHOAc as a 43:57 Z/E mixture. The latter mixture was treated with MeOH and CO in the presence of (Ph ₃ P) ₂ PdCl ₂ catalyst in a stainless steel bomb at 100° for 92.5 h to give 28.6% MeSCH ₂ CH ₂ CH(OAc)CO ₂ Me (II) and 19.5% MeSCH ₂ CH ₂ CH(OAc)CSOMe. II was hydrolyzed by 2N HCl at 50° for 4 h to give 92% I (R = Me).			
IT	64-19-7, uses and miscellaneous (catalyst, for reaction of (methylthio)propionaldehyde with acetic anhydride)			
RN	64-19-7 HCAPLUS			
CN	Acetic acid (7CI, 8CI, 9CI) (CA INDEX NAME)			



IT **107-02-8P**, preparation
 (formation of, from reaction of acetoxy(methylthio)propene with
 alcs. and carbon monoxide in absence of catalyst)
 RN 107-02-8 HCAPLUS
 CN 2-Propenal (9CI) (CA INDEX NAME)



IT **3268-49-3**
 (reaction of, with acetic anhydride)
 RN 3268-49-3 HCAPLUS
 CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IC ICM C07C149-20
 CC 34-2 (Amino Acids, Peptides, and Proteins)
 Section cross-reference(s): 23
 IT **64-19-7**, uses and miscellaneous 110-86-1, uses and
 miscellaneous 121-44-8, uses and miscellaneous 127-08-2
 532-32-1 563-67-7 603-35-0, uses and miscellaneous
 1310-58-3, uses and miscellaneous 53189-26-7
 (catalyst, for reaction of (methylthio)propionaldehyde with
 acetic anhydride)
 IT 79-20-9P **107-02-8P**, preparation
 (formation of, from reaction of acetoxy(methylthio)propene with
 alcs. and carbon monoxide in absence of catalyst)
 IT **3268-49-3**
 (reaction of, with acetic anhydride)

L29 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1985:487504 HCAPLUS Full-text
 DOCUMENT NUMBER: 103:87504
 TITLE: Continuous preparation of β -
 methylmercaptopropionaldehyde
 INVENTOR(S): Pavlovski, Ana Maria; Levinta, Lucia; Gross,
 Gernot Holger
 PATENT ASSIGNEE(S): Combinatul Petrochimic, Pitesti, Rom.
 SOURCE: Rom., 2 pp.
 CODEN: RUXXA3
 DOCUMENT TYPE: Patent
 LANGUAGE: Romanian
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RO 85095	B	19840924	RO 1982-106977	1982 0322
PRIORITY APPLN. INFO.:			<-- RO 1982-106977	1982 0322

AB The addition reaction of CH₂:CHCHO with MeSH at atmospheric pressure at 30-45° gave MeSCH₂CH₂CHO in high yields.

IT 74-93-1, reactions
(addition of, with acrolein)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IT 3268-49-3P
(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IC ICM C07C151-00

CC 23-14 (**Aliphatic** Compounds)

IT 74-93-1, reactions
(addition of, with acrolein)

IT 3268-49-3P
(preparation of)

L29 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1981:191700 HCAPLUS Full-text

DOCUMENT NUMBER: 94:191700

TITLE: Direct preparation of β-methylthiopropionaldehyde

INVENTOR(S): Komorn, Yves; Schwachhofer, Ghislain

PATENT ASSIGNEE(S): Rhone-Poulenc Industries S. A., Fr.

SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	

EP 22697	A1	19810121	EP 1980-400951	1980 0625
			<--	
EP 22697	B1	19811230		
R: BE, CH, DE, FR, GB, IT, NL, SE				
FR 2460925	A1	19810130	FR 1979-17827	1979 0710
			<--	
FR 2460925	B1	19810814		
US 4319047	A	19820309	US 1980-164539	1980 0702
			<--	
BR 8004260	A	19810127	BR 1980-4260	1980 0709
			<--	
ES 493224	A1	19810416	ES 1980-493224	1980 0709
			<--	
CA 1138896	A1	19830104	CA 1980-355801	1980 0709
			<--	
SU 1318153	A3	19870615	SU 1980-2948390	1980 0709
			<--	
JP 56053648	A2	19810513	JP 1980-93336	1980 0710
			<--	
JP 57008098	B4	19820215		
PRIORITY APPLN. INFO.:			FR 1979-17827	A 1979 0710
			<--	

AB Acrolein, prepared by air oxidation of propylene, was purified and treated with MeSH to yield MeSCH₂CH₂CHO in an apparatus which is described. The acrylic acid impurity was removed from the acrolein by countercurrent washing in water or solvent; the water was removed by condensation and the condensate was partially vaporized to recover acrolein.

IT 74-93-1, reactions
(addition reaction of, with acrolein)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IT 3268-49-3P
(preparation of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

IC C07C149-14
CC 23-14 (**Aliphatic** Compounds)
IT **74-93-1**, reactions
(addition reaction of, with acrolein)
IT **3268-49-3P**
(preparation of)

L29 ANSWER 23 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1978:109868 HCAPLUS Full-text

DOCUMENT NUMBER: 88:109868

TITLE: Illness with temporary work disability in
workers engaged in acrolein and
methylmercaptopropionaldehyde (MMP) production

AUTHOR(S): Kantemirova, A. E.

CORPORATE SOURCE: USSR

SOURCE: Trudy Volgogradskogo Gosudarstvennogo
Meditsinskogo Instituta (1975),
26(4), 79-85

CODEN: TVLMB8; ISSN: 0376-141X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Workers in the title industry are exposed to the action of the following air
pollutants: methylmercaptan [74-93-1] 0.003-5.6, MMP [3268-49-3] 0.1-6.0,
HCHO [50-00-0] 0.05-8.1, MeCHO [75-07-0] 0.48-22, and acrolein [107-02-8]
0.1-8.2 mg/m³. Catarrhal diseases are the most frequent and the highest sick
rate is observed among women working for <1 or >7 y.

IT **74-93-1**, biological studies
(health hazards of, in acrolein and
methylmercaptopropionaldehyde manufacture)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C—SH

IT **3268-49-3P**
(manufacture of, health hazards of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 23
IT 50-00-0, biological studies **74-93-1**, biological studies
75-07-0, biological studies

(health hazards of, in acrolein and
methylmercaptopropionaldehyde manufacture)
IT 107-02-8P, preparation **3268-49-3P**
(manufacture of, health hazards of)

L29 ANSWER 24 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1977:120784 HCAPLUS Full-text

DOCUMENT NUMBER: 86:120784

TITLE: β -Methylthiopropionaldehyde

INVENTOR(S): Biola, Georges; Komorn, Yves; Limongi, Eric

PATENT ASSIGNEE(S): Rhone-Poulenc S. A., Fr.

SOURCE: Ger. Offen., 12 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
DE 2627430	A1	19761223	DE 1976-2627430	1976 0618
			<--	
DE 2627430	B2	19770721		
DE 2627430	C3	19850110		
FR 2314917	A1	19770114	FR 1975-20183	1975 0620
			<--	
SU 691086	D	19791005	SU 1976-2370202	1976 0615
			<--	
US 4225516	A	19800930	US 1976-696432	1976 0615
			<--	
JP 52003013	A2	19770111	JP 1976-70901	1976 0616
			<--	
JP 57000317	B4	19820106		
ES 448918	A1	19770701	ES 1976-448918	1976 0616
			<--	
BE 843077	A1	19761217	BE 1976-168033	1976 0617
			<--	
NL 7606580	A	19761222	NL 1976-6580	1976 0617
			<--	
NL 184517	B	19890316		
NL 184517	C	19890816		
SE 7607035	A	19761221	SE 1976-7035	1976

0618

SE 431089 B 19840116
 SE 431089 C 19840426
 BR 7603949 A 19770322 BR 1976-3949

1976
0618

CH 610882 A 19790515 CH 1976-7831

1976
0618

CA 1069536 A1 19800108 CA 1976-255246

1976
0618

PRIORITY APPLN. INFO.:

FR 1975-20183

A

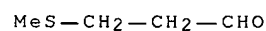
1975
0620

AB The waste gas from acrolein (I) synthesis containing .apprx.5% I was freed from $\text{H}_2\text{C}:\text{CHCO}_2\text{H}$ and H_2O and dissolved in $\text{MeSCH}_2\text{CH}_2\text{CHO}$ (II), then treated with MeSH at .apprx. 30° to give $\text{MeSCH}_2\text{CH}_2\text{C}(\text{SMe})\text{OH}$, which was maintained at .apprx.0.15% in the solution The combined yield of II was 99%.

IT **3268-49-3P**
 (preparation of)

RN 3268-49-3 HCAPLUS

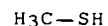
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT **74-93-1**, reactions
 (reaction of, with acrolein)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)



IC C07C149-14

CC 23-14 (**Aliphatic** Compounds)

IT **3268-49-3P**
 (preparation of)

IT **74-93-1**, reactions
 (reaction of, with acrolein)

L29 ANSWER 25 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1976:576769 HCAPLUS Full-text

DOCUMENT NUMBER: 85:176769

TITLE: Development of a continuous method for
 preparation of 3-(methylthio)propionaldehyde

AUTHOR(S): Zvegintseva, G. B.; Medvedev, A. I.; Reimer,
 M. I.; Dyadchenko, M. A.

CORPORATE SOURCE: Nauchno-Issled. Inst. Khim. Polim. Mater.,
Tambov, USSR
SOURCE: Tezisy Dokl. Nauchn. Sess. Khim. Tekhnol. Org.
Soedin. Sery Sernistyykh Neftei, 13th (
1974), 343. Editor(s): Gal'pern, G.
D. "Zinatne": Riga, USSR.
CODEN: 33SUAA
DOCUMENT TYPE: Conference
LANGUAGE: Russian
AB A math. model was used to optimize a continuous process for MeSCH₂CH₂CHO (I)
synthesis by reacting MeSH with acrolein (II); I was saturated with MeSH, and
the resulting solution was treated with II in the presence of Et₃N.
IT 74-93-1
(addition reaction of, with acrolein, (methylthio)propionaldehyde
by, catalysis, simulation, and optimization of)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C—SH

IT 3268-49-3P
(by addition reaction of methanethiol with acrolein, catalysis,
simulation, and optimization of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

CC 23-14 (Aliphatic Compounds)
IT 74-93-1
(addition reaction of, with acrolein, (methylthio)propionaldehyde
by, catalysis, simulation, and optimization of)
IT 3268-49-3P
(by addition reaction of methanethiol with acrolein, catalysis,
simulation, and optimization of)

L29 ANSWER 26 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1976:523278 HCAPLUS Full-text
DOCUMENT NUMBER: 85:123278
TITLE: Peroxide initiation of the reaction of
mercaptans with unsaturated compounds
AUTHOR(S): Rykov, B. K.; Sizov, S. Yu.; Sukhanov, S. V.
CORPORATE SOURCE: Volzh. Zavod. Org. Sint., Volzhsk, USSR
SOURCE: Tezisy Dokl. Nauchn. Sess. Khim. Tekhnol. Org.
Soedin. Sery Sernistyykh Neftei, 13th (
1974), 343. Editor(s): Gal'pern, G.
D. "Zinatne": Riga, USSR.
CODEN: 33SUAA
DOCUMENT TYPE: Conference
LANGUAGE: Russian

AB RSH (R = lower alkyl, e.g., Me) addition to unsatd. compds. (e.g., acrolein) to give the corresponding sulfides (e.g., MeSCH₂CH₂CHO) was initiated by organic peroxides; α-haloacyl peroxides were recommended.
IT **74-93-1**
(addition reaction with acrolein, initiator for)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C—SH

IT **3268-49-3P**
(preparation of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

CC 23-9 (**Aliphatic** Compounds)
IT **74-93-1**
(addition reaction with acrolein, initiator for)
IT **3268-49-3P**
(preparation of)

L29 ANSWER 27 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1975:409198 HCAPLUS Full-text
DOCUMENT NUMBER: 83:9198
TITLE: S-Substituted mercaptopropionaldehyde
INVENTOR(S): Ito, Hiroo; Kimura, Kaoru; Yamada, Akira
PATENT ASSIGNEE(S): Toa Gosei Chemical Industry Co., Ltd.
SOURCE: Jpn. Tokkyo Koho, 3 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 49024045	B4	19740620	JP 1970-43681	1970 0523
			<--	
PRIORITY APPLN. INFO.:			JP 1970-43681	1970 0523
			<--	

AB Cr(OAc)₃.H₂O and n-dodecylmercaptan were kept 1 hr at 30° with acrolein, containing a polymerization inhibitor (e.g. hydroquinone), to give 82.1% β-n-dodecylthiopropionaldehyde. The reaction of RSH (R = Me, Et, Bu, Ph) with

RCH:CR1CHO (R = H, R1 = H, Me; R = Me, R1 = H) and inorg. Cr salts were also discussed.

IT 74-93-1

(addition reaction with acrolein)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

$\text{H}_3\text{C}-\text{SH}$

IT 3268-49-3P

(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

$\text{MeS}-\text{CH}_2-\text{CH}_2-\text{CHO}$

IC C07C; B01J

CC 23-14 (**Aliphatic** Compounds)

IT 74-93-1 75-08-1 108-98-5 109-79-5 112-55-0

(addition reaction with acrolein)

IT 3268-49-3P 19378-51-9P 27098-65-3P 38160-52-0P

38160-57-5P 55154-14-8P

(preparation of)

L29 ANSWER 28 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:409197 HCAPLUS Full-text

DOCUMENT NUMBER: 83:9197

TITLE: β -Methylthiopropionaldehyde and its alkyl derivatives

INVENTOR(S): Ohuchi, Shunji; Shibuya, Kazumasa

PATENT ASSIGNEE(S): Asahi Chemical Industry Co., Ltd.

SOURCE: Jpn. Tokkyo Koho, 3 pp.

CODEN: JAXXAD

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 49024046	B4	19740620	JP 1970-78498	1970 0909
			<--	
PRIORITY APPLN. INFO.:			JP 1970-78498	1970 0909
			<--	

AB MeSH was added to RCH:CR1COR2 (R, R1, R2 = H, alkyl) in EtOH containing β -PhNHClOH7, NH4O2CNH2, NH4HCO3, (NH4)2CO3, NH4Cl-NaHCO3, or NH3-CO2 at 10-20° to give $\leq 90\%$ MeSCHRCHR1COR2.
IT **74-93-1**
(addition reaction of, with acrolein, catalyst for)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H3C-SH

IT **3268-49-3P**
(by addition reaction of methylmercaptan with acrolein, catalyst for)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH2-CH2-CHO

IC C07C; B01J
CC 23-14 (**Aliphatic** Compounds)
IT **74-93-1**
(addition reaction of, with acrolein, catalyst for)
IT **3268-49-3P**
(by addition reaction of methylmercaptan with acrolein, catalyst for)

L29 ANSWER 29 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1975:16324 HCAPLUS Full-text
DOCUMENT NUMBER: 82:16324
TITLE: β -(Methylthio)propionaldehyde
INVENTOR(S): Sizov, S. Yu.; Sukhanov, S. V.; Rykov, V. K.;
Shustov, V. I.; Tsarenko, S. V.
PATENT ASSIGNEE(S): Volzhskii Plant of Organic Synthesis
SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom.
Obraztsy, Tovarnye Znaki 1974, 51(34), 63.
CODEN: URXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
SU 443029	T	19740915	SU 1972-1819472	1972 0810
				<--
PRIORITY APPLN. INFO.:			SU 1972-1819472	A 1972 0810

<--

AB MeSCH₂CH₂CHO (I) was prepared by treating acrolein with MeSH in an organic solvent (e.g., I) in 1:1 I-MeSH ratio.

IT 74-93-1
(addition reaction with acrolein)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IT 3268-49-3P
(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IC C07C

CC 23-14 (Aliphatic Compounds)

IT 74-93-1
(addition reaction with acrolein)

IT 3268-49-3P
(preparation of)

L29 ANSWER 30 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:16319 HCAPLUS Full-text

DOCUMENT NUMBER: 82:16319

TITLE: 3-Methylmercaptopropionaldehyde

INVENTOR(S): Koberstein, Edgar; Mueller, Klaus; Theissen, Ferdinand

PATENT ASSIGNEE(S): Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler

SOURCE: Ger., 3 pp.
CODEN: GWXXAW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
DE 2320544	B1	19740912	DE 1973-2320544	1973 0421
			<--	
DE 2320544	C2	19750605		
US 4048232	A	19770913	US 1973-399127	1973 0920
			<--	
SU 505357	D	19760228	SU 1974-1996514	

				1974 0218
DD 110862	C	19750112	DD 1974-176862	
				1974 0228
ES 423736	A1	19760416	ES 1974-423736	
				1974 0228
GB 1400702	A	19750723	GB 1974-9296	
				1974 0301
NL 7404691	A	19741023	NL 1974-4691	
				1974 0405
BR 7402784	A0	19741105	BR 1974-2784	
				1974 0408
CH 582665	A	19761215	CH 1974-5019	
				1974 0410
RO 68025	P	19801230	RO 1974-78468	
				1974 0418
BE 813990	A1	19741021	BE 1974-6044553	
				1974 0419
FR 2226393	A1	19741115	FR 1974-13752	
				1974 0419
JP 50012012	A2	19750207	JP 1974-44369	
				1974 0419
AT 7403268	A	19751215	AT 1974-3268	
				1974 0419
AT 331773	B	19760825		
IT 1005995	A	19760930	IT 1974-50485	
				1974 0419
CA 1005460	A1	19770215	CA 1974-197828	
				1974 0419
SE 397344	B	19771031	SE 1974-5321	
				1974 0419

PRIORITY APPLN. INFO.:

DE 1973-2320544

A

1973

0421

<--

AB CH₂:CHCHO reacted with MeSH in the presence of hexamethylenetetramine catalyst to give 99.0-99.8% MeSCH₂CH₂CHO.

IT 74-93-1

(addition reaction of, with acrolein, catalysts for)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IT 3268-49-3P

(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IC C07C

CC 23-14 (Aliphatic Compounds)

IT 74-93-1

(addition reaction of, with acrolein, catalysts for)

IT 3268-49-3P

(preparation of)

L29 ANSWER 31 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:16318 HCAPLUS Full-text

DOCUMENT NUMBER: 82:16318

TITLE: β-Methylthiopropionaldehyde

INVENTOR(S): Kojima, Takeshi; Horisawa, Toshiharu;

Shimasaki, Masami; Ito, Ryoichi

PATENT ASSIGNEE(S): Kanegafuchi Chemical Industry Co., Ltd.

SOURCE: Jpn. Tokkyo Koho, 2 pp.

CODEN: JAXXAD

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 49024890	B4	19740626	JP 1970-82267	1970 0919

<--

PRIORITY APPLN. INFO.:

JP 1970-82267

1970

0919

<--

AB Amino acids catalyzed the addition of MeSH (I) to CH₂:CHCHO (II). Thus, 56 g II were added to 48 g I containing 0.5 g methionine at <40° over 60 min to give 93.6 g MeSCH₂CH₂CHO.

IT **74-93-1**
(addition reaction with acrolein, catalysts for)

RN 74-93-1 HCAPLUS

CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C—SH

IT **3268-49-3P**
(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS—CH₂—CH₂—CHO

IC C07C; B01J

CC 23-14 (**Aliphatic** Compounds)

IT **74-93-1**
(addition reaction with acrolein, catalysts for)

IT **3268-49-3P**
(preparation of)

L29 ANSWER 32 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:16317 HCAPLUS Full-text

DOCUMENT NUMBER: 82:16317

TITLE: S-Substituted mercaptopropionaldehyde

INVENTOR(S): Ito, Hiroo; Kimura, Kaoru; Sato, Masakatsu; Yamada, Akira

PATENT ASSIGNEE(S): Toa Gosei Chemical Industry Co., Ltd.

SOURCE: Jpn. Tokkyo Koho, 3 pp.
CODEN: JAXXAD

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 49024454	B4	19740622	JP 1970-43680	1970 0523

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PRIORITY APPLN. INFO.: JP 1970-43680

1970
0523

<--

AB The addition of RSH (R = alkyl) to R₁CH:CR₂CHO (R₁, R₂ = H, alkyl) to give RSCHR₁CHR₂CHO was promoted by strong acid catalysts, which activated the

double bond by protonating the CO group. Thus, CH₂:CHCHO was added dropwise at 0-6.8° to MeSH and HCl, then held 1 hr at 30° to give 86.5% MeSCH₂CH₂CHO.

IT 74-93-1
(addition reaction with acrolein)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

IT 3268-49-3P
(preparation of)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IC C07C; B01J
CC 23-14 (Aliphatic Compounds)
IT 74-93-1
(addition reaction with acrolein)
IT 3268-49-3P 19378-51-9P
(preparation of)

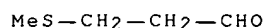
L29 ANSWER 33 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1973:57756 HCAPLUS Full-text
DOCUMENT NUMBER: 78:57756
TITLE: Methional
INVENTOR(S): Wakamatsu, Hachiro; Sato, Eiji; Sato, Haruyoshi; Ono, Yoshio
PATENT ASSIGNEE(S): Ajinomoto Co., Inc.
SOURCE: Jpn. Tokkyo Koho, 5 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 47043925	B4	19721107	JP 1968-63178	1968 0903

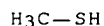
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AB C₆H₆, MeOH, Me₂CO, AcOEt, Et₂O, tetrahydrofuran, Me₂S, EtSMe, and n-heptane were used as solvents (0.4 l./mole MeSH) for the manufacture of MeSCH₂CH₂CHO (I) by treating MeSH, CH₂:CH₂, and CO in the presence of radical reaction initiators. Thus, 30 ml. n-heptane, 120 mg azobisisobutyronitrile, 0.64 g MeSH, and a gas mixture (665 kg/cm²) of CO and CH₂:CH₂ (25:1) was heated 2 hr at 80° to give 0.65 g I.
IT 3268-49-3P
(preparation of)

RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT 74-93-1
(reaction of, with carbon monoxide and ethylene in solvents)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

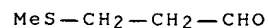


IC C07C
CC 23-14 (Aliphatic Compounds)
IT 3268-49-3P
(preparation of)
IT 74-93-1
(reaction of, with carbon monoxide and ethylene in solvents)

L29 ANSWER 34 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1973:42803 HCAPLUS Full-text
DOCUMENT NUMBER: 78:42803
TITLE: Formation of methional and methanethiol from methionine
AUTHOR(S): Wainwright, T.; McMahon, J. F.; McDowell, J.
CORPORATE SOURCE: Res. Lab., Arthur Guinness Son and Co.
(Dublin) Ltd., Dublin, Ire.
SOURCE: Journal of the Science of Food and Agriculture
(1972), 23(7), 911-14
CODEN: JSFAAE; ISSN: 0022-5142
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Methanethiol is formed from methionine and sulfite in a reaction catalyzed by Fe or Mn(II) ions. Methionine sulfoxide and dimethyl disulfide are other products of the reaction. Methional [3-(methylthio)propional] is postulated as an intermediate in the reaction.

IT 3268-49-3P
(from decarboxylation of methionine)
RN 3268-49-3 HCAPLUS
CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)



IT 74-93-1P
(from decomposition of methionine)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

CC 23-7 (Aliphatic Compounds)
IT 3268-49-3P
(from decarboxylation of methionine)
IT 74-93-1P 624-92-0P
(from decomposition of methionine)

L29 ANSWER 35 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:463677 HCAPLUS Full-text

DOCUMENT NUMBER: 67:63677

TITLE: Addition of methanethiol to some
 α,β -unsaturated aldehydes and study
of the reduction and acetalization of the
addition products

AUTHOR(S): Boustany, Kamel S.

CORPORATE SOURCE: Neuchatel Univ., Neuchatel, Switz.

SOURCE: Journal of Chemistry of the U.A.R. (1966), 9(3), 317-22

CODEN: JCURAS

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To 0.5 mole α,β -unsatd. aldehyde at -20° is added a catalyst (piperidine or copper acetate) and 0.45 mole MeSH (previously chilled to -20°), the mixture stirred 14 hrs. at $30-5^\circ$, extracted with Et₂O, washed with 2N HCl and H₂O, the ethereal solution evaporated, and the residue distilled to give the corresponding 3-(methylthio)aldehyde (I). The I prepared were: 3-(methylthio)propanal, b₁₄ 61° , d₂₀ 1.036, n_{20D} 1.4850, 2,4-dinitrophenylhydrazone, m. $121-2^\circ$; 3-(methylthio)butanal, b₁₀ 63° , 0.997, 1.4771 2,4-dinitrophenylhydrazone, m. $173-4^\circ$; and 3-(methylthio)-2-ethylhexanal, b_{0.2} 74° , 0.954, 1.4759. Reduction of I with LiAlH₄ in Et₂O gave the corresponding alcs.: 3-(methylthio)propanol, b₁₁ 87° , 1.030, 1.4899; 3-(methylthio)butanol, b₁₀ 86° , 0.999, 1.4865; and 3-(methylthio)-2-ethylhexanol, b_{0.6} 84° , 0.957, 1.4833. The alcs. treated with an excess of an acid or anhydride in the presence of p-toluenesulfonic acid gave the corresponding esters: 3-(methylthio)propyl acetate, b₁₄ 96° , 1.041, 1.4636; 3-(methylthio)propyl butyrate, b₁₁ 108° , 0.994, 1.4580; 3-(methylthio)butyl formate, b₉ 78° , 1.039, 1.4680; and 3-(methylthio)-2-ethylhexyl formate, b_{0.2} 109° , 0.984, 1.4714. I treated with alc. (an excess of 50-100%) in the presence of p-toluenesulfonic acid, the reaction mixture refluxed 4-6 hrs., extracted with Et₂O, and worked up gave the corresponding 3-(methylthio)acetals: 3-(methylthio)propanal diethylacetal, b₁₂ 91° , 0.960, 1.4525; 3-(methylthio)propanal glycol acetal, b₁₁ 93° , 1.107, 1.4839; 3-(methylthio)butanal, glycol acetal, b₉ 90° , 1.071, 1.4831; and 3-(methylthio)butanal dimethylacetal, b₁₀ 73° , 0.980, 1.4562. 3-(Methylthio) acids are prepared by addition of Me₃SH to the corresponding unsatd. ester followed by saponification. Thus, 3-(methylthio)butyric acid, b₁₀ 127° , 1.105, 1.4833, was obtained from the corresponding ester. 2-(Methylthio) acetic acid, b₁₁ 103° , 1.227, 1.4933, was prepared by reaction of MeSNa and ClCH₂CO₂H in the presence of aqueous NaOH.

IT 3268-49-3P

(preparation of)

RN 3268-49-3 HCAPLUS

CN Propanal, 3-(methylthio)- (9CI) (CA INDEX NAME)

MeS-CH₂-CH₂-CHO

IT 74-93-1
(reaction of, with α -unsatd. alkenals)
RN 74-93-1 HCAPLUS
CN Methanethiol (8CI, 9CI) (CA INDEX NAME)

H₃C-SH

CC 23 (Aliphatic Compounds)
IT 505-10-2P 646-01-5P 2444-37-3P 3268-49-3P
7372-49-8P 16630-52-7P 16630-53-8P 16630-54-9P 16630-55-0P
16630-56-1P 16630-57-2P 16630-58-3P 16630-59-4P
16630-60-7P 16630-61-8P 16630-62-9P 16630-64-1P
16630-65-2P 16630-66-3P 18413-10-0P
(preparation of)
IT 74-93-1
(reaction of, with α -unsatd. alkenals)

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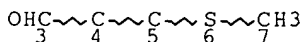
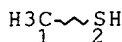
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L8 STR

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DEFAULT ECLEVEL IS LIMITED

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 7

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L10      12 SEA FILE=CASREACT SSS FUL L8 (      15 REACTIONS)
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L10 ANSWER 1 OF 12 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 145:166862 CASREACT Full-text

INVENTOR(S): Redlingshoefer, Hubert; Weckbecker, Christoph;
Huthmacher, Klaus; Fischer, Achim; Barth,
Jan-Olaf

PATENT ASSIGNEE(S): Degussa AG, Germany

SOURCE: Ger. Offen., 7 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE _____

APPLICATION NO. _____

DATE _____

DE 102005003990

A1

20060803

DE 2005-1020050

899020050128

WO 2006079582

A1

20060803

WO 2006-EP50132

20060110

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	KE,	KG,	KM,	KN,	KP,	KR,	KZ,	LC,	LK,	LR,	LS,	LT,	LU,	LV,
	LY,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NA,	NG,	NI,	NO,	NZ,
	OM,	PG,	PH,	PL,	PT,	RO,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,
	SY,	TJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	VC,	VN,	YU,
	ZA,	ZM,	ZW											
RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FI,	FR,	GB,	GR,
	HU,	IE,	IS,	IT,	LT,	LU,	LV,	MC,	NL,	PL,	PT,	RO,	SE,	SI,
	SK,	TR,	BF,	BJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,
	NE,	SN,	TD,	TG,	BW,	GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL,
	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	BY,	KG,	KZ,	MD,	RU,	TJ,	TM

US 2006183945 A1 20060817

US 2006-340673 20060127

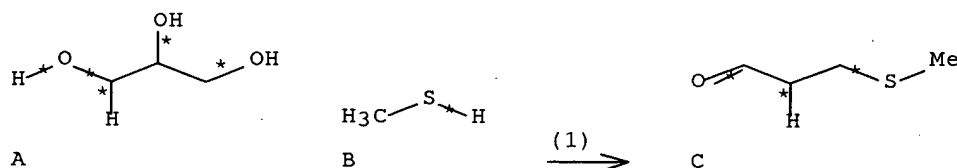
PRIORITY APPLN. INFO.:

DE 2005-10200500399020050128

OTHER SOURCE(S) : MARPAT 145:166862

AB 3-(Alkylthio)propanals RSCH₂CH₂CHO [R = H, C1-3 alkyl; e.g., 3-(methylthio)propanal] are prepared in high yield and selectivity by the reaction of mercaptans RSH (e.g., Me mercaptan) with glycerol in the presence of catalysts (e.g., HZSM-5 zeolites).

RX(1) OF 1 A + B ==> C



RX(1) RCT A 56-81-5, B 74-93-1
 PRO C 3268-49-3
 SOL 67-56-1 MeOH
 CON 1 hour, 300 deg C, 61 bar
 NTE reaction run in an autoclave, HZSM-5, Modul 28 zeolite catalyst used, catalyst calinated prior to use, reaction run at lower pressure for short time lead to side product formation, high pressure

L10 ANSWER 2 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 144:214741 CASREACT Full-text
 TITLE: Method and catalysts for preparing 3-(methylthio)propanal from acrolein and methyl mercaptan and for the manufacture of 2-hydroxy-4-(methylthio)butanenitrile from it and hydrogen cyanide
 INVENTOR(S): Dubner, Frank; Weckbecker, Christoph
 PATENT ASSIGNEE(S): Germany
 SOURCE: U.S. Pat. Appl. Publ., 8 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2006030739	A1	20060209	US 2005-198609	20050805
US 7119233	B2	20061010		
DE 102004038053	A1	20060427	DE 2004-10200403805320040805	
WO 2006015684	A2	20060216	WO 2005-EP7666	20050714
WO 2006015684	A3	20060803		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG,

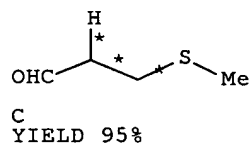
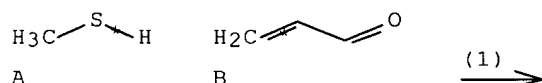
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,
 TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
 HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI,
 SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
 NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL,
 SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

DE 2004-10200403805320040805

AB A method is described for preparing 3-(methylthio)propanal (I) by the the addition reaction of Me mercaptan to acrolein in the presence of macro-reticular resin catalysts containing pendant tertiary-amine groups [e.g., [(dimethylamino)methyl]styrene copolymer] to give I which is then reacted with HCN in the presence of the same catalyst to give 2-hydroxy-4-(methylthio)butanenitrile. Process flow diagrams are presented.

RX(1) OF 6 A + B ==> C



RX(1) RCT A 74-93-1

STAGE(1)

CAT 9040-03-3 Benzenemethanamine, ar-ethenyl-N,N-dimethyl-, homopolymer
 CON 10 minutes, 0 deg C

STAGE(2)

RCT B 107-02-8
 CON 2 hours, 0 deg C

PRO C 3268-49-3

NTE solid-supported catalyst on Merrifield resin,
 3-(methylthio)propanal used as reaction medium,
 batchwise synthesis

REFERENCE COUNT:

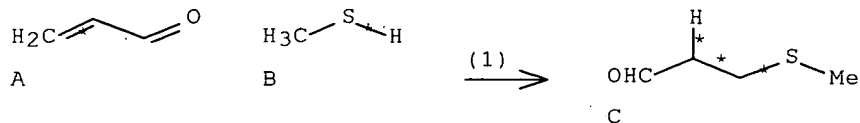
14

THERE ARE 14 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L10 ANSWER 3 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 140:356948 CASREACT Full-text
 TITLE: Catalytic addition reaction for the production
 of 3-(methylthio)propanal from mercaptomethane
 and acrolein
 INVENTOR(S): Rey, Patrick
 PATENT ASSIGNEE(S): Adisseo France S.A.S., Fr.
 SOURCE: Eur. Pat. Appl., 10 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1413573	A1	20040428	EP 2002-356211	20021024
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CA 2495746	AA	20040506	CA 2003-2495746	20031014
WO 2004037774	A1	20040506	WO 2003-IB4557	20031014
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003267771	A1	20040513	AU 2003-267771	20031014
EP 1556343	A1	20050727	EP 2003-748466	20031014
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003015385	A	20050823	BR 2003-15385	20031014
CN 1705641	A	20051207	CN 2003-80101589	20031014
JP 2006515834	T2	20060608	JP 2004-546263	20031014
US 2005240048	A1	20051027	US 2005-524548	20050516
NO 2005002471	A	20050725	NO 2005-2471	20050523
PRIORITY APPLN. INFO.:			EP 2002-356211	20021024
			WO 2003-IB4557	20031014
AB A process for the production of 3-(methylthio)propanal comprises reacting mercaptomethane and acrolein in the presence of a catalyst comprising an organic base such as an N-alkylmorpholine (e.g., 4-methylmorpholine).				

RX(1) OF 3 A + B ==> C...



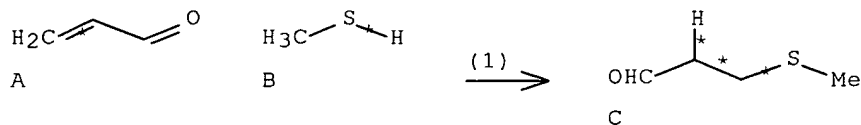
RX(1) RCT A 107-02-8, B 74-93-1
 PRO C 3268-49-3
 CAT 64-19-7 AcOH, 109-02-4 N-Methylmorpholine
 SOL 74-93-1 MeSH
 CON SUBSTAGE(1) room temperature -> 40 deg C
 SUBSTAGE(2) 40 deg C
 NTE optimization study, optimized on catalyst
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L10 ANSWER 4 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 140:287102 CASREACT Full-text
 TITLE: Method for producing 3-methylthiopropenal from
 acrolein and methyl mercaptan
 INVENTOR(S): Shiozaki, Tetsuya; Haga, Toru
 PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan
 SOURCE: U.S. Pat. Appl. Publ., 4 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004063650	A1	20040401	US 2003-665006	20030922
JP 2004115461	A2	20040415	JP 2002-282874	20020927
EP 1408029	A1	20040414	EP 2003-21191	20030924
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1496979	A	20040519	CN 2003-125534	20030925
PRIORITY APPLN. INFO.:			JP 2002-282874	20020927

AB 3-Methylthiopropenal is produced in high yield and selectivity by supplying
 acrolein and Me mercaptan together or sequentially with an acidic compound
 (e.g., acetic acid) and a basic compound (e.g., pyridine) into a reaction
 system to react the acrolein with the Me mercaptan, where the basic compound
 is used in an amount of about 0.3 mol or less per mol of the acidic compound

RX(1) OF 1 A + B ==> C



RX(1) RCT A 107-02-8, B 74-93-1
 RGT D 64-19-7 AcOH
 PRO C 3268-49-3
 SOL 110-86-1 Pyridine
 CON 45 - 50 minutes, 70 deg C
 NTE other products detected

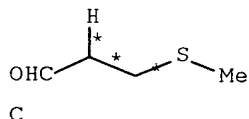
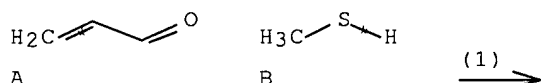
L10 ANSWER 5 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 128:114715 CASREACT Full-text
 TITLE: Processes for the preparation of
 3-(methylthio)propanal and
 2-hydroxy-4-(methylthio)butanenitrile
 INVENTOR(S): Blackburn, Thomas F.; Pellegrin, Paul F.
 PATENT ASSIGNEE(S): Novus International, Inc., USA
 SOURCE: U.S., 9 pp., Cont.-in-part of U.S. 5,663,409.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5705675	A	19980106	US 1995-581249	19951229
US 5663409	A	19970902	US 1995-476356	19950607
ZA 9604335	A	19960820	ZA 1996-4335	19960528
WO 9640631	A1	19961219	WO 1996-US9060	19960604
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML				
AU 9659873	A1	19961230	AU 1996-59873	19960604
AU 714151	B2	19991223		
EP 830341	A1	19980325	EP 1996-917222	19960604
EP 830341	B1	20010905		
R: BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE				
CN 1189818	A	19980805	CN 1996-195190	19960604
CN 1092184	B	20021009		
JP 11511119	T2	19990928	JP 1997-501471	19960604
RU 2173681	C2	20010920	RU 1998-100220	19960604
ES 2160819	T3	20011116	ES 1996-917222	19960604
PT 830341	T	20011228	PT 1996-917222	19960604
CN 1510030	A	20040707	CN 2002-2002126457	19960604
PRIORITY APPLN. INFO.:				
			US 1995-476356	19950607
			US 1995-581249	19951229
			WO 1996-US9060	19960604

OTHER SOURCE(S): MARPAT 128:114715

AB A catalytic processes for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile using novel addition catalysts is described. The novel addition catalysts include: triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, 4-dimethylaminopyridine, picoline, pyrazine, trialkylamines, and tertiary amines. E.g., reaction of MeSH and acrolein in presence of poly-4-vinylpyridine gave 89.0% 3-(methylthio)propanal. The aldehyde product, containing the poly-4-vinylpyridine catalyst, was converted to the nitrile in the same reactor by treatment with HCN. The yield of nitrile was 72.9%.

RX(1) OF 3 A + B ==> C...



RX(1) RCT A 107-02-8, B 74-93-1
 PRO C 3268-49-3
 CAT 110-86-1 Pyridine, 64-19-7 AcOH
 NTE novel process focuses on the catalyst/acid combination;
 process minimizes the extent of polymer formation
 REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L10 ANSWER 6 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 126:157183 CASREACT Full-text
 TITLE: Process for the continuous preparation of
 3-(methylthio)propanal from acrolein and
 methyl mercaptan
 INVENTOR(S): Hsu, Yung C.
 PATENT ASSIGNEE(S): Novus International, Inc., USA
 SOURCE: PCT Int. Appl., 85 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9700858	A1	19970109	WO 1996-US10920	19960621

W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE,
 DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ,
 LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,
 PL, PT, RO, RU, SD, SE, SG, SI

RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR,
 GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
 CM, GA, GN, ML

US 5905171	A	19990518	US 1996-667099	19960620
AU 9663959	A1	19970122	AU 1996-63959	19960621
AU 726921	B2	20001123		
EP 842149	A1	19980520	EP 1996-923452	19960621
EP 842149	B1	20030205		

R: BE, DE, DK, ES, FR, GB, IT, LU, NL, MC, PT, IE

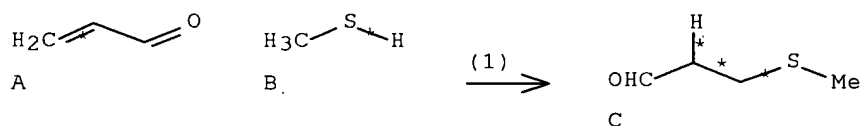
CN 1188470	A	19980722	CN 1996-194943	19960621
CN 1120834	B	20030910		
JP 11508266	T2	19990721	JP 1997-504005	19960621
RU 2172734	C2	20010827	RU 1998-100590	19960621
ES 2192607	T3	20031016	ES 1996-923452	19960621

PRIORITY APPLN. INFO.:

US 1995-421P	19950622
US 1996-667099	19960620
WO 1996-US10920	19960621

AB In the title process, a liquid reaction, medium containing 3-(methylthio)propanal and a catalyst for the reaction between Me mercaptan and acrolein, is contacted with a gaseous acrolein feed stream in a gas-liquid contact zone. The gaseous acrolein feed stream comprises acrolein vapor and noncondensable gas and the acrolein is transferred from the acrolein feed stream to the reaction medium. Me mercaptan, introduced into the reaction medium, reacts with the acrolein in that medium, producing a liquid reaction product containing 3-(methylthio)propanal. The noncondensable gas is then separated from the liquid reaction product the reaction product is divided into a produce fraction and a circulating fraction, and the circulating fraction is recycled to the gas/liquid contact zone. Process flow diagrams are presented.

RX(1) OF 1 A + B ==> C



RX(1) RCT A 107-02-8, B 74-93-1
 PRO C 3268-49-3
 NTE continous process

L10 ANSWER 7 OF 12 CASREACT COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 124:184625 CASREACT Full-text

TITLE: Process for the treatment and conditioning of
 solid or liquid effluents charged with heavy
 metals

INVENTOR(S): Leybros, Jean

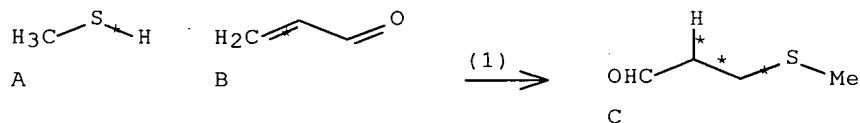
PATENT ASSIGNEE(S): Commissariat a l'Energie Atomique, Fr.

SOURCE: Eur. Pat. Appl., 9 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 687483	A1	19951220	EP 1995-401367	19950613
EP 687483	B1	19980826		
R: BE, CH, DE, ES, GB, IT, LI, NL				
FR 2721237	A1	19951222	FR 1994-7297	19940615
FR 2721237	B1	19960802		
ES 2123221	T3	19990101	ES 1995-401367	19950613
PRIORITY APPLN. INFO.:			FR 1994-7297	19940615

AB The effluent is treated with a reducing agent (e.g., SO₂) and then contacted with an organic extractant (e.g., bis(2-ethylhexyl)phosphoric acid) and a hydrocarbon (e.g., hydrogenated tetrapropylene) for selective removal of the metal ions, followed by removing the heavy metals from the organic extract by a 2nd aqueous extraction, and precipitating and filtering the metals from the aqueous solution

RX(1) OF 1 A + B ==> C



RX(1) RCT A 74-93-1, B 107-02-8
 PRO C 3268-49-3
 NTE Classification: S-Alkylation; "1,4-Addition"; #
 Conditions: (AcO)₂; <50 deg 2atm; # Comments: 4.7.49

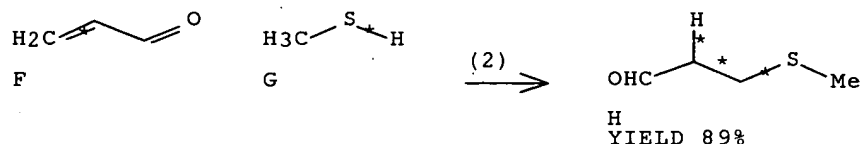
L10 ANSWER 8 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 120:133858 CASREACT Full-text
 TITLE: Process for producing 2-hydroxy-4-methylthiobutanoic acid
 INVENTOR(S): Matsuoka, Kazuyuki
 PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan
 SOURCE: PCT Int. Appl., 21 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9323372	A1	19931125	WO 1993-JP659	19930520
W: US				

RW: BE, DE, FR, GB
 JP 06049020 A2 19940222 JP 1993-143026 19930520
 JP 3219544 B2 20011015
 EP 601195 A1 19940615 EP 1993-910360 19930520
 EP 601195 B1 19960828
 R: BE, DE, FR, GB
 CN 1084511 A 19940330 CN 1993-107598 19930521
 CN 1036391 B 19971112
 US 5386056 A 19950131 US 1994-178315 19940112
 JP 1992-155802 19920521
 WO 1993-JP659 19930520
 PRIORITY APPLN. INFO.:

AB A process for producing 2-hydroxy-4-methylthiobutanoic acid (I) together with methanol comprises hydrating 2-hydroxy-4-methylthiobutyronitrile (II) into 2-hydroxy-4-methylthiobutanamide (III), reacting the amide with Me formate to yield Me 2-hydroxy-4-methylthiobutanoate (IV) and formamide, and hydrolyzing the Me ester. The discharge of a large amount of ammonium sulfate can be prevented, because no sulfuric acid is used as the reactant. The byproduct formamide and methanol are utilizable as the starting material of the reaction after converting them into HCN and Me formate, resp. Thus, addition of MeSH to acrolein in the presence of Cu(OAc)₂ and hydroquinone and addition of the resulting 3-methylthiopropionaldehyde with HCN in the presence of NaOH in MeOH gave II. Hydration of II in the presence of MnO₂ in aqueous acetone at 60° for 6 h to give III which was reacted with HCO₂Me in MeOH containing MeONa to give IV and the byproduct formamide. Hydrolysis of IV in the presence of Amberlyst 15 in H₂O at 95° gave I, while the byproduct MeOH was recovered. Formamide was fed into a stainless steel reactor packed with alumina at 500° to give HCN. MeOH was contacted with a catalyst prepared from Cu(NO₃)₂ and ammonium chromate in a stainless steel reactor to give Me formate.

RX(2) OF 15 F + G ==> H...



RX(2) RCT F 107-02-8, G 74-93-1
 PRO H 3268-49-3
 CAT 123-31-9 Hydroquinone, 142-71-2 Cu(OAc)₂
 NTE 20°

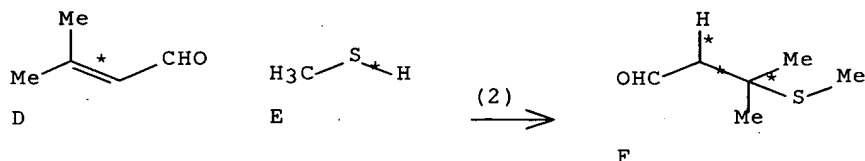
L10 ANSWER 9 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 114:207514 CASREACT Full-text
 TITLE: Influence of phosphoric ester groups in geranyldiphosphate biosynthesis
 AUTHOR(S): Jacob, L.; Julia, M.; Pfeiffer, B.; Rolando, C.
 CORPORATE SOURCE: Lab. Chim. 24, Ec. Norm. Super., Paris, 75231, Fr.
 SOURCE: Bulletin de la Societe Chimique de France

(1990), (Nov.-Dec.), 719-33
CODEN: BSCFAS; ISSN: 0037-8968

DOCUMENT TYPE: Journal
LANGUAGE: English

AB A variety of elimination reactions of sulfonium salts related to intermediates in geranyl diphosphate biosynthesis confirmed that the direction of elimination is strongly influenced by the phosphate residue favoring the formation of the natural isomer. Thus, elimination of $\text{Me}_2\text{S}+\text{CMe}_2\text{CH}_2\text{CH}_2\text{OP}(\text{O})(\text{OMe})_2\text{BF}_4^-$ by $\text{NaOD}-\text{MeOD}$ 2 h at 20° gave 72% natural isomer $\text{Me}_2\text{C}:\text{CHCH}_2\text{OP}(\text{O})(\text{OMe})_2$ (I); elimination by $\text{Me}_3\text{COK}-\text{DMSO}-d_6$ gave 95% of an isomeric mixture containing 63% I and 37% $\text{CH}_2:\text{CMeCH}_2\text{CH}_2\text{OP}(\text{O})(\text{OMe})_2$. Elimination of $\text{Me}_2\text{S}+\text{CRMeCH}_2\text{CH}_2\text{OP}(\text{O})(\text{OMe})_2$ (R = prenyl) by $\text{NaOEt}-\text{EtOH}$ gave 70% (glc) of a mixture containing 27% (E)- $\text{RCH}_2\text{CMe}:\text{CHCH}_2\text{OP}(\text{O})(\text{OMe})_2$, 67% (Z)- $\text{RCH}_2\text{CMe}:\text{CHCH}_2\text{OP}(\text{O})(\text{OMe})_2$, 4% $\text{RCH}_2\text{C}(:\text{CH}_2)\text{CH}_2\text{CH}_2\text{OP}(\text{O})(\text{OMe})_2$, and 2% $\text{RCH}:\text{CMeCH}_2\text{CH}_2\text{OP}(\text{O})(\text{OMe})_2$. Addnl. elimination reactions under solvolytic conditions were also carried out.

RX(2) OF 39 D + E ==> F...



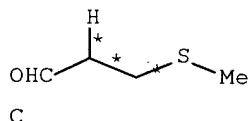
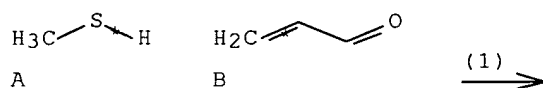
RX(2) RCT D 107-86-8, E 74-93-1
PRO F 133567-89-2

L10 ANSWER 10 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 51:47157 CASREACT Full-text
TITLE: 3-(Methylthio)propanal
INVENTOR(S): Hunt, Madison; Merner, Richard R.
PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2776996		19570108	US	

AB A mixture of MeSH (I) 440 and pyridine 16 is fed into acrolein 500 and HOAc 5 parts in an autoclave below 75° . The final portion of 3-(methylthio)-propanal (II) and I is added rapidly at 40° to give 91-7% II.

RX(1) OF 1 A + B ==> C



RX(1) RCT A **74-93-1**, B 107-02-8
 PRO C **3268-49-3**
 SOL 110-86-1 Pyridine, 64-19-7 AcOH
 NTE Classification: S-Alkylation; "1,4-Addition"; #
 Conditions: MeSH pyridine AcOH; 70-75 deg; # Comments:
 high yield

L10 ANSWER 11 OF 12 CASREACT COPYRIGHT 2006 ACS on STN

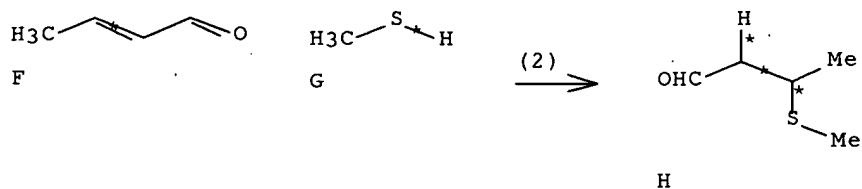
ACCESSION NUMBER: 50:73727 CASREACT Full-text
 TITLE: Sulfur-containing amino acids
 AUTHOR(S): Reisner, David B.
 CORPORATE SOURCE: Wallace & Tiernan, Inc., Newark, NJ
 SOURCE: Journal of the American Chemical Society
 (1956), 78, 2132-5
 CODEN: JACSAT; ISSN: 0002-7863
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB MeCH:CHCHO (140 g.) and 96 g. MeSH in the presence of 2 drops of piperidine stirred 0.5 hr. at 5-10° and 3 hrs. at room temperature, the mixture treated with an addnl. 28 g. MeSH, heated about 1 hr. at 90°, diluted with 500 cc. Et2O, washed with dilute HCl and H2O, dried, and evaporated, and the residue distilled gave 201 g. MeSCHMeCH2CHO (I), b23 80°. AcCH:CH2 (27 g.) and 18 g. MeSH yielded 35.4 g. Ac(CH2)2SMe, b55 106°, nD25 1.4711. I (48.5 g.), 113 g. (NH4)3SO3, 25.5 g. NaCN, 335 cc. EtOH, and 335 cc. H2O heated 5 hrs. with stirring at 55°, the mixture concentrated to about 300 cc., treated cautiously with 50 cc. concentrated HCl, heated 7 min. at about 90°, refrigerated, and filtered, and the residue washed with 200 cc. H2O yielded 49 g. 5-(β-benzylmercapto)propylhydantoin, m. 117-18° (from EtOAc). Similarly were prepared the following compds. RR'C.CO.NH.CO.NH (R, R', m.p., and % yield given): MeS(CH2)2, Me, 109.5-10.5°, 93.8; MeSCHMeCH2, H, 191-2°, 50.1; MeSCHPhCH2, H, 173-4°, 491. S-Benzyl-4-methylhomocysteine (7.17 g.), m. 222.5-3.5° (decomposition) (from H2O) (obtained in 94% yield from the hydantoin) (0.69, 0.74, 0.93) (the figures given in parentheses through out this abstract represent the Rf values of the resp. compds. obtained by ascending paper chromatography with BuOH-AcOH, lutidine-collidine, and PhOH-H2O, resp.) in 300 cc. liquid NH3 treated with about 1.7 g. Na, the solution decolorized with about 1 g. NH4Cl, treated with 5 cc. MeI, and evaporated, the residue treated with 125 cc. H2O, washed with Et2O, filtered, neutralized with concentrated HCl to pH about 6, concentrated to about 50 cc., diluted with 50 cc. Me2CO, and refrigerated, and the crystalline deposit recrystd. from

aqueous MeOH yielded 4.1 g. MeSCHMeCH₂CH(NH₂)CO₂H (II), m. 236-7° (decomposition), (0.44, 0.53, 0.79). Similarly were prepared: MeS(CH₂)₂CMe(NH₂)CO₂H, 61%, m. 284-5° (decomposition) (from aqueous MeOH), (0.45, 0.50, 0.77); MeSCHPh(CH₂)₂CH(NH₂)CO₂H, 49.3%, m. 201-2° (decomposition) (from H₂O). BzCH₂SMe (21.8 g.) in 50 cc. dry Et₂O added with stirring to 1.4 g. LiAlH₄ in 10 cc. dry Et₂O, the mixture refluxed 1 hr. with stirring, cooled, and treated with stirring with 200 cc. ice water and 100 cc. 5N H₂SO₄, the aqueous layer washed with Et₂O, the combined Et₂O solns. washed, dried, and evaporated under a jet of dry air, and the residue distilled gave 18.4 g. MeSCH₂CH(OH)Ph (III), b_{1.8} 113-14.5°. III (170 mg.) treated with MeI yielded III. MeI, m. 134-5° (decomposition). III (15.8 g.) in 25 cc. dry CHCl₃ treated with cooling with 9.2 g. SOCl₂ in 15 cc. dry CHCl₃, the mixture cooled 0.5 hr., kept at room temperature overnight and evaporated, the residue heated gently with 5 cc. dry CHCl₃ and 5 cc. SOCl₂, and the mixture distilled gave 14.3 g. MeSCH₂CHClPh (IV), b_{2.8} 106-7°, n_D²⁵ 1.5692. AcNHCH(CO₂Et)₂ (11.6 g.) and 200 mg. KI added with stirring to 1.23 g. Na in 100 cc. absolute EtOH, the mixture treated with 10 g. IV in 1 portion, stirred 2 hrs. at room temperature, refluxed 5 hrs., and filtered hot, the residue washed with about 50 cc. hot EtOH, the combined alc. solns. evaporated to dryness in vacuo, the residual oil kept at room temperature overnight, and the crystalline material washed with dilute HCl and H₂O and dried in vacuo over KOH pellets yielded 16 g. MeSCH₂CHPhC(NHAc)(CO₂Et)₂ (V), m. 95-6° (from Et₂O-pentane). Crude V (14.4 g.), 40 cc. H₂O, and 10 cc. concentrated HCl refluxed 6 hrs. with stirring, the mixture treated with 40 cc. H₂O and 10 cc. concentrated HCl, refluxed 1.5 hrs. with stirring, cooled to room temperature, the solid refluxed 8 hrs. with stirring with 80 cc. glacial AcOH and 10 cc. concentrated HCl, treated with Norit, and filtered, the residue washed with H₂O, the combined filtrates evaporated in vacuo, the residue (about 10 g.) triturated with 50 cc. Me₂CO and filtered, and the residue washed with Me₂CO and dried yielded 5 g. MeSCH₂CHPhCH(NH₂)CO₂H.HCl (VI.HCl), m. 208-9° (decomposition); the Me₂CO solns. combined and evaporated to dryness, the residue refluxed 6.5 hrs. with 25 cc. H₂O, 25 cc. glacial AcOH, and 10 cc. concentrated HCl, the solution evaporated to dryness in vacuo, the residue washed with Me₂CO and neutralized with AmNH₂, and a 1-g. portion dissolved in 8 cc. H₂O and neutralized with AmNH₂ to pH 6, diluted with 25 cc. Me₂CO, and filtered, and the residue washed with 15 cc. Me₂CO yielded 300 mg. VI; the filtrate diluted with Me₂CO gave a 2nd crop, 350 mg. MeSH (14 g.) passed with stirring and cooling into 1.2 g. Na in 150 cc. absolute MeOH, the mixture treated with stirring and cooling with 50 g. Me α-benzamidosenecioate, diluted with 200 cc. absolute MeOH and 200 cc. dry C₆H₆, stirred 1 hr. at room temperature, allowed to stand overnight, treated with 3.12 g. glacial AcOH, and evaporated to dryness in vacuo at room temperature, the residue washed with warm dry C₆H₆, the C₆H₆ evaporated, the residue (58 g.), 300 cc. 85% HCO₂H, 300 cc. concentrated HCl, and 300 cc. H₂O refluxed 6 hrs., the solution concentrated to about 50 cc., washed with Et₂O, neutralized with AmNH₂ to pH 6, diluted with 350 cc. Me₂CO, and refrigerated 2 days, and the white crystals washed with 300 cc. Me₂CO and 200 cc. Et₂O yielded 16.8 g. S-methylpenicillamine, m. 281-2° (0.38, 0.50, 0.80); it was also obtained in the same manner from 2-phenyl-4-isopropylidene-5-oxazolone and 30 g. MeSH. MeSH (16 g.) passed into 1.2 g. Na in 300 cc. absolute MeOH, the solution treated with cooling and stirring with 62.3 g. 2-phenyl-4-benzal-5-oxazolone in 500 cc. warm, dry C₆H₆, the mixture stirred about 1 hr., kept at room temperature, treated with 3.12 g. glacial AcOH, and evaporated to dryness in vacuo, the residue treated with 100 cc. warm C₆H₆ and filtered, the filtrate diluted with 100 cc. warm C₆H₆ and 500 cc. pentane, and chilled, and the deposit washed with 150 cc. pentane yielded 74 g. PhCH(SMe)CH(NHBz)CO₂Me (VII), m. 97-8.5° (from EtOAc-pentane). Crude VII (32.9 g.) hydrolyzed with 150 cc. H₂O, 150 cc. concentrated HCl, and 150 cc. 90% HCO₂H, the solution concentrated in vacuo to near dryness, and the precipitate washed with three 100-cc. portions H₂O, dissolved in 75 cc. H₂O, neutralized to pH 6 with AmNH₂, and chilled yielded 12.5 g. S-methyl-3-

phenylcysteine, m. 178-9° (decomposition) (0.51, 0.65, 0.88). The following sulfoxides were prepared by oxidation of the appropriate sulfides with H₂O₂ by the method of Toennies and Kolb (C.A. 33, 5359.9) (% yield, m.p., and R_f values given): PhCH₂S(O)CHMeCH₂CH(NH₂)CO₂H, 64.7, 214-15° (decomposition) (from H₂O), (0.45, 0.60, 0.92); MeS(O)CH₂CH₂CMe(NH₂)CO₂H, 91.8, 239.5-40.5° (decomposition) (from aqueous MeOH), (0.14, 0.35, 0.77); MeS(O)CHMeCH₂CH(NH₂)CO₂H (VIII), 84.4, 213.5-14.5° (from aqueous MeOH), (0.13, 0.40, 0.80); MeS(O)CH₂CHPhCH(NH₂)CO₂H, 74.4, 205-6° (decomposition) (from aqueous MeOH), (0.33, 0.59, 0.87); MeS(O)CHPhCH₂CH(NH₂)CO₂H, 87.7, 189-90° (decomposition) (from aqueous MeOH), (0.33, 0.47, 0.85); Me₂CHCH[S(O)Me]CH(NH₂)CO₂H, 77.7, 166-7° (from aqueous MeOH), (0.14, 0.40, 0.76); PhCH[S(O)Me]CH(NH₂)CO₂H, 73.2, 147-8° (decomposition) (from aqueous MeOH), (0.29, 0.54, 0.82). VIII (600 mg.), 3 cc. H₂O, 2 cc. MeOH, 0.2 cc. concentrated HCl, and 2 cc. 30% H₂O₂ refluxed 2 hrs., treated with 1 cc. 30% H₂O₂, refluxed again 2 hrs., neutralized with AmNH₂ to pH 6.5, diluted with 100 cc. Me₂CO and filtered, and the residue washed with 50 cc. Me₂CO yielded 550 mg. MeS(O₂)CHMeCH₂CH(NH₂)CO₂H, m. 230-1° (decomposition) (from aqueous MeOH), (0.14, 0.50, 0.72). In the same manner was prepared PhCH₂S(O₂)CH₂CH₂CH(NH₂)CO₂H, 70.6%, m. 229-30° (decomposition) (from H₂O), (0.50, 0.65, 0.84). The following sulfones were prepared by the oxidation on the appropriate sulfides with H₂O₂ in the presence of NH₄ molybdate and HClO₄ by the method of Toennies and Kolb (C.A. 35, 6571.1) (% yield, m.p., and R_f values given): MeS(O₂)CH₂CH₂CMe(NH₂)CO₂H, 73.6, 288-9° (decomposition) (from aqueous MeOH), (0.16, 0.45, 0.65); MeS(O₂)CH₂CHPhCH(NH₂)CO₂H (IX), 50.8, 222-3° (decomposition) (from H₂O), (0.32, 0.61, 0.79); MeS(O₂)CHPhCH₂CH(NH₂)CO₂H (X), 95.4, 196.5-7.5° (decomposition), (0.37, 0.55, 0.79); Me₂CHCH[S(O₂)Me]CH(NH₂)CO₂H, 77.7, 166-7° (from aqueous MeOH), (0.14, 0.53, 0.68); MeS(O₂)CHPhCH(NH₂)CO₂H, 51.2, 141-2° (decomposition) (from aqueous MeOH), (0.30, 0.52, 0.70). VIII (6.0 g.) treated dropwise with stirring at 3° with 10.4 cc. concentrated H₂SO₄, the mixture heated with stirring to 45°, treated during 1 hr. at 48° with 54 cc. 1.4N HN₃ in CHCl₃, then heated with stirring 5 hrs. at 48°, treated with 13.5 cc. HN₃ solution, heated 5 hrs. with stirring at 50°, stirred overnight at room temperature, poured with stirring onto 75 g. crushed ice, neutralized with solid Ba(OH)₂ to about pH 2.5 then to pH 5 with solid BaCO₃, and centrifuged, the supernatant decanted, the residue mixed with H₂O, centrifuged, and decanted, this operation repeated until free of amino acid, the combined aqueous solns. concentrated in vacuo at 50° to about 100 cc., treated with C, and filtered, and the filtrate concentrated to about 40 cc., filtered, and evaporated to dryness yielded 6.4 g. MeS(:NH)CHMeCH₂CH(NH₂)CO₂H, m. 199-200° (decomposition) (from aqueous MeOH), (0.08, 0.38, 0.71). In the same manner was prepared: MeS(:NH)CH₂CH₂CHMe(NH₂)CO₂H, 100, 199-200° (decomposition) (from aqueous MeOH), (0.10, 0.35, 0.67). IX (100 mg.) treated with about 60 mg. N-bromosuccinimide gave MeS(O₂)CH₂CHPhCHO, isolated as the 2,4-dinitrophenylhydrazone, m. 188-9° (decomposition). X gave similarly MeS(O₂)CHPhCH₂CHO, isolated as the 2,4-dinitrophenylhydrazone, decomposed at 196-8° with a change from yellow to red at 169°. Only 4 of the amino acids suppressed the multiplication of T2 bacteriophage of Escherichia coli strain A.T.C.C. number 11303 at pH 7 and 37° at 100 p.p.m. or less.

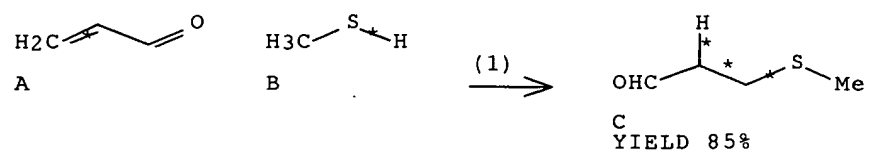


RX(2) RCT F 123-73-9, G 74-93-1
 PRO H 16630-52-7
 NTE Classification: S-Alkylation; "1,4-Addition"; #
 Conditions: MeSH (piperidine); 5-10 deg 30mn; 3h 20 deg;
 1h 90 deg

L10 ANSWER 12 OF 12 CASREACT COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 42:25284 CASREACT Full-text
 TITLE: Synthesis of DL-methionine
 AUTHOR(S): Pierson, Earl; Giella, Mario; Tishler, Max
 CORPORATE SOURCE: Merck & Co., Inc., Rahway, NJ
 SOURCE: Journal of the American Chemical Society
 (1948), 70, 1450-1
 CODEN: JACSAT; ISSN: 0002-7863
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB Addition of 48 g. MeSH to 56 g. CH₂:CHCHO and 0.5 g. Cu(OAc)₂ at 35-40° gives 84% MeSCH₂CH₂CHO (I), b₁₁ 52-4°, n_{20D} 1.4850, d₂₀ 1.036 (2,4-dinitrophenylhydrazone, m. 116-19°). I (10.4 g.), shaken with 10.4 g. NaHSO₃ in 35 mL. H₂O, the product treated (in 3 portions) with 4.9 g. NaCN in 15 mL. H₂O (temperature below 35°), the oil immediately extracted with C₆H₆, and the C₆H₆ extracted with NaHSO₃, gives 90% α-hydroxy-β-(methylmercapto)butyronitrile (II), an oil that distilled at 100°/3 μ. I (26 g.), 113 g. (NH₄)₂CO₃, 24.5 g. NaCN, 335 mL. EtOH, and 335 mL. H₂O, heated 4 h. at 50-5°, and the filtrate concentrated to 300 mL. and heated 5 min. at 90° with 50 mL. concentrated HCl, give 79% 5-(2-methylmercaptoethyl)hydantoin (III), m. 103-5°; it results in 50% yield (based on I) from II and (NH₄)₂CO₃ in 50% MeOH (2.5 h. at 50-5°). III (17.4 g.) and 8.8 g. NaOH in 75 mL. H₂O, refluxed 6 h., an addnl. 4.4 g. NaOH added, and the refluxing continued for 18 h., give 10.6 g. DL-methionine (IV), m. 269° (decomposition); if I and III are not isolated, the yield (based on CH₂:CHCHO) is 50%. II (123 g.), treated 30 min. at 60° with NH₃, gives 40% of crude methionine nitrile, which could not be purified; hydrolysis by heating 5.5 h. on the steam bath with 20 mL. concentrated HCl yields 75% IV. Hydrolysis of III to IV was also effected by concentrated HCl at 135° and by (NH₄)₂S at 135°.

RX(1) OF 1 A + B ==> C



RX(1) RCT A 107-02-8, B **74-93-1**
 RGT D 142-71-2 Cu(OAc)₂
 PRO C **3268-49-3**
 NTE Classification: "1,4-Addition"; S-Alkylation; #
 Conditions: Cu(OAc)₂ MeSH gas; 30mn 40 deg; 1h